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novel

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Editorial

HINDSIGHT, AS EVERYONE knows, is a lot better than foresight. Looking back you *know* what has happened; looking forward you can only guess. The guess may be a shrewd one with a high percentage of probability, but it is still an assumption based on incomplete knowledge. We can be very certain that the sun will rise in the east but we can only be absolutely certain after it has done so.

I wonder how many generals, sitting in their tents on the eve of battle, have longed for preliminary hindsight? How many people who would give much just to *know* what the immediate future will bring? A man waiting for a major operation which may, or may not, restore his health. A woman wondering whether her child will be boy or girl. A gambler wishing to know the name of the winning horse before he makes his bet.

Clairvoyance, to these people, seems just the thing.



But is it? Would it help anyone to be able to see into the future? Would it aid the general if he knew that, within twenty-four hours, his armies would be scattered and the battle lost? Would it help a gambler to know that he was going to win? If he had that knowledge he would no longer be a gambler, so, by definition, a gambler cannot be certain of the result of his wager. Clairvoyance, to him, would only serve to take the zest from his sport.

But clairvoyance has, and always will have, a terrible fascination for the worried, the desperate, the unhappy. To them, as to most of us, uncertainty is the enemy. Anything is better than indecision. Even the worst, once known, can be accepted.

But can it?

The general sees the wreck of his armies and battle plans. He will lose the conflict, he knows it. So what can he do? Logically, there is only one thing he can do—surrender and avoid the debacle. But if he does that, then his glimpse of the future is false, for in that future he has fought and lost. So, apparently, he must fight just the same, but this time without the slightest hope of winning. Being human, he refuses to send his men to certain destruction. Being logical and intelligent, he wonders why, if he can change the future by refusing to fight, he shouldn't win the war anyway. But if he engages in battle he will lose.

He would have been happier operating strictly on his own.

Human nature being what it is, it is impossible for a man to learn that something unpleasant is going to happen to him without trying to avoid it. A man consults a one hundred-percent.-correct clairvoyant. He learns that, in two days' time, he will be killed in a road accident. So he goes home, locks the doors and refuses to venture near a road. He doesn't get killed, and so proves what?

That the clairvoyant wasn't a hundred per cent. correct?

That each individual has the power to alter the future, once he knows it,' and so make clairvoyancy a self-invalidating science? Or that the very act of peering into the future introduces an unknown element?

Clairvoyancy, in that light, would be like picking a card, each card being a probable future, with the added complication that the very act of picking a card makes certain that the one picked isn't the right one.

But, even granting the ability to see into the future, clairvoyancy is one of the psionic talents that we are better without. Correction; that we simply cannot afford to have. No one can live with the absolute, certain, unavoidable knowledge of the exact date of his death. No one can continue to work and hope and dream when he *knows* what's going to happen to him. If it's going to happen, anyway, then why struggle? Why work? Why hope and dream?


But work, hope and dreams have lifted man from the slime and set his foot on the path to the stars.

Man, with clairvoyancy, wouldn't be man.

E.C.T.



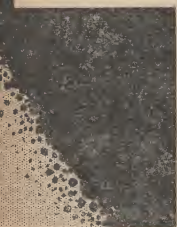
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Eleven men and a woman alone between the stars—with Death, inescapable, measuring out the final hours

The LITTLE CORPORAL

by J. T. McINTOSH



ALMOST WITH AMUSEMENT Winter stood on the balcony outside the control room and looked down the well of the dying ship. From the gallery he could see everyone on board. Behind him, in the control room, Shaw and Souness scribbled feverishly in an effort to make two and two add up to thirty-seven. On the gallery ten feet below, on the opposite side of the well, the two girls tried to throw off the sleep which had been interrupted with the information that they had fifteen hours to live. On the same circle, directly below Winter, the three miners chattered like excited monkeys. And at the bottom of the well the cook, the engineer and the steward stared up at him along the length of the ship. Eleven altogether, including himself. He had time to tell them individually exactly why they were dying, but it wouldn't be funny to them that their deaths were irrelevant adjuncts of his.

He looked round again, assessing anew the murder of ten people merely as a blind

for the death of the eleventh. He weighed the crime in his mind and wondered if Barker had done that before him. Probably not. Barker never weighed anything. His course was always obvious to him. He worked to so many decimal places that there was never any question of hesitating between alternatives.

There was Shaw, whom everyone would blame for the disaster, because if any of them had a shadow of responsibility for it Shaw was the one, not the captain. Young Shaw had a wife even younger, a child who could not yet walk, and his whole manhood before him; but still they would blame him for throwing away their lives. Shaw might have chosen the long course known to be free of black moss, but he had taken the infinitesimal risk of a new course and as a result they would die. Beside him was Bill Souness, the boastful spaceman, the shy lover, who would divide his last fifteen hours between raising futile hopes with wild schemes for survival and staring hungrily at the two girls who were now

not merely passengers but companions in the last peril.

The girls, Esther and Marjory, were so-called colonists who had gone out to Ceres ready to work for far-off riches, but not ready, they had discovered, to live in a settlement millions of miles from civilization and only ten years old. They had probably relied on their beauty to help them, but it hadn't brought what they wanted. The miners were hard-headed, unambitious, placid men who had made enough in the first rush to last for the rest of their lives and were taking it away before they lost it or made too much more.

The cook was a woman who had found when she was eighteen that travelling was in her blood, and had spent twenty years gratifying her lust for long journeys behind and before her. The engineer was her second husband—the first had not shared her love of space and the marriage was dissolved quietly and without regret. The steward was nothing. Something must have happened to make him so, and the chances were about

even, Winter thought, that they would discover what it was before they died.

That was Barker's crime—the murder of Black, the steward, who would accept death indifferently; Smith, Hawkin and Randall, the miners, who had won all they wanted and were now to have it taken from them; Mary and Robert Crispin, who had always known that death in space was catching up on them; Shaw, to whom death was an incredible horror, and Souness, who would be too busy with other things to comprehend it until just before the end; and Esther and Marjory, who had been bound to settle down and have children before they were twenty-five and had not even had time for that.

Oh, yes, there was also Jim Winter, thirty-four, Captain Winter, who was the only one Barker wanted to murder.

The girls disappeared into Esther's cabin, and Winter turned from the rail and went into the control room. He lit a cigarette and threw one each to Shaw and Souness.

As they stared at him, he laughed.

"We could smoke two at a time and still never get through them," he said. "And we could light a bonfire without having to worry about wasting the air."

"I'll find some way out," said Souness stubbornly.

"Don't let anyone hear you say that," observed Winter, knowing it was useless. "We've been through the black moss." He glanced over at the green ball, now dark again. "It's no use working out now a course that would cut it out. No use working out anything. But don't let me stop you."

He walked out of the room and went down the steel stairs. There was nothing to be gained by making a routine tour, saying a few casual words to everyone. But it was inevitable that he should do it. Any captain would. He saw the miners first.

"The youngster wasn't pitching it strong?" asked Smith, his hard face cool and expressionless. "We're all for the high jump?"

Winter nodded.

"I wonder he had the nerve to be the one to tell us," Hawkin growled. "He's the navigator, isn't he?"

"That was one thing I wanted to talk to you about. It's ridiculous to blame Shaw. You won't find Souness doing it, or the Crispins, or me. And we should know."

"He took a chance he didn't have to take, didn't he?"

"On Earth," said Winter carefully, "you might want to sail from Cape Town to Melbourne. You could do it the safe way—round Africa, along the Indian coast, down among the East Indies, and round Australia, hardly ever out of sight of land. And if the boat sank on any day but three or four, you could always swim ashore. But nobody does it that way. They go straight—less than half the distance, and less than a quarter the time. If the boat does sink, you may be sorry you didn't go round the coast—but you don't blame the navigator."

He saw he had made some sort of impression, so without

adding detail he strolled to the door and left them.

He tapped on Esther Maxwell's door, and the eager "Come in!" showed how Esther's hopes at the knock had leaped toward safety. He set his expression to kill the hope as he entered.

They were the inevitable team, Esther tall and fair, Marjory small and dark, and the contrasts seemed to follow dutifully right through. Esther had started to dress, but with her pyjama top changed for a blouse had realised how little it mattered. Neither of them wore any makeup or had brushed her hair. Soon, however, habit would reassert itself and Esther would realise she had put on a soiled blouse, and they would join the others looking like a couple of film stars again.

He said almost exactly what he had said to the miners. The first difference came when Marjory asked: "Will it be very bad?"

He stared at her, still absorbed in the effort to explain that Shaw wasn't to blame.

"Painful, I mean?" the girl asked anxiously.

"Not in the least. For ten hours you'll feel exactly as you do now."

"And then?"

"We needn't go into that. But it won't hurt."

"Tell her," said Esther. "She can't take pain. She must know."

"Your body gradually collapses inside. You can still move about a bit, but after another hour it's as well to sit down. You might fall and hurt yourself. You couldn't get up. You look the same, even at the end, and the last thing to go is your sight. It's like sleeping. You don't know much at the end. It's about the easiest death anyone could have."

"How do you know about it?" Marjory asked tensely.

"People have died from black moss with their radio turned on. They described everything, right to the end. We know everything about it until they can't speak any more. But they're unconscious by then."

"Can we write letters that

someone might find?" Esther asked.

"No one will ever find anything. Soon after we die the ship will gradually collapse, too. No one will come near it, for of course it's contaminated. We're stopping so that we'll drift in space. In a week there will be no danger to anyone—everything will be dead dust, quite harmless."

Esther shivered. "Can't you make it sound a little rosier?" she demanded.

"If you think it will help."

"Nothing will help, I suppose?"

"No."

Marjory looked up. "Can we talk on the radio?"

"Not even that, I'm afraid. Ceres hasn't a big enough station yet to hear our calls, and Mars, Venus and Earth are all too far. We could overload the radio and get a distress call out, but there's no point in that. Any rescue ship might hit the black moss, too."

"So there's nothing to do but sit around and die?" It was Esther, the calmer, more self-sufficient of the two.

"I hope we'll all find something better than that."

He left them to complete his tour. They might have taken it much worse. Esther reminded him faintly of Pam, his wife. It was a memory he didn't want or need.

The Crispins met him philosophically. "You needn't give us the spiel, Jim," said Mary. They both laughed, the Crispins who could laugh at anything.

Of the three women on the ship, with two glamour girls above, Mary was the most beautiful, at thirty-eight. She had plenty of faults that they hadn't—a sharp chin, creases about her eyes, ruddy colour, a strong nose, a big mouth—but it all made a glorious, lovely whole. She had always been beautiful, and she would never have quite lost her beauty. She and Bob were the best, the happiest people on the ship, Winter thought—and their death would be the smallest tragedy.

"Do the beauty queens want to be left alone, or do you think I could help?" she asked.

"I'd be glad if you'd see

them, Mary. And, Bob, you might look in on the miners. You might be able to say the right thing, if there is any."

"Sure," said Bob, who was older than Mary but not as much as he looked. "What are you doing about the ship?"

"Leaving it right between the black moss and Earth. We can't do anything about ships coming the other way, but if by any chance a ship tries to make Ceres straight from Earth in the next week we may be of some use yet. When they saw us drifting they'd know what had happened."

"Chances are only fifty million to one against," Bob remarked.

"Anyway, they'll know about that patch now." The course they would follow had been filed on Ceres to provide for just such an event. In a month that spot of black moss would be charted and might never claim another victim. Black moss, whatever it was, kept pretty much the same position in the system. Ships could pass safely within a million miles of a known patch with no fear of its

having drifted that much. They often did, for it was a curious fact that you were never safer than when you had just passed a patch.

Black was in his room, but he looked up with an expression that said so plainly he wanted solitude that Winter left him and closed the door quietly.

Despite his efforts, Shaw was going to have a bad time of it. It was a pity he could not tell everyone that Shaw was only the scapegoat for Barker. Shaw knew that Barker had worked the course, but he didn't, couldn't, have any idea that Barker had known about the black moss. Barker had given him the course he wanted; he had accepted it in his indolent way, though he still checked it to make sure—but how could Shaw guess that Barker had seen his chance and taken it?

Even Winter couldn't be quite sure. But it all fitted neatly. Barker had once been an explorer, among the thousand other things, and though he had faithfully reported everything else, he had learned

about that patch of black moss and stored away the information—perhaps even then with his purpose already clear . . .

It was hardly human. It was typical Barker. Winter checked his climb back to the control room for a moment, suddenly amazed that he had known Barker only for such a tiny part of his life. He could hardly remember when he had not known Barker.

Like an egg dropped in water to see if it is fresh, the tiny ovoid carrier floated down to the broken surface of the asteroid and settled gently on one end. It landed on a spur, so that when it opened Winter had to jump outward and downward to reach the ground. At first he floated down even more slowly than the carrier, then gradually gathered momentum and landed at a speed which looked much more dangerous than it was.

The man he was replacing stood ready, and waited while the five men standing about the telephone post checked that it was safe for him to

leave. Two miles up, the launch would be prepared for him to be an enemy, and when the shell of the carrier slid back he would be met by a ring of guns held by men in masks ready to flood the ship with gas. Two miles farther up the launch would be drawn into the hold of the *Belligerent* with the care and caution which would meet a captured enemy who might still be dangerous.

Winter watched curiously. A man he knew, Captain Stone, crossed to him. "Lieutenant Winter?" he asked formally, though for a year he had commanded a ship in which Winter was a midshipman. Winter saluted and the captain acknowledged, but immediately dropped the formality and remarked: "Salutes are out, here, Winter. There's too few of us and we're too top-heavy in rank. But remember it lasts only six months . . . Oh, this is Major Gresham."

Major Gresham's one interest in Winter appeared to be first whether he played bridge, and then if he was any good at it. Winter recog-

nised the eye of the player who played for 5-1 adverse distributions, and sighed inwardly. Winter played cards well for a man who had no interest in the pastime, and realised that he had merely escaped the poker of the wardroom in the *Belligerent* to fall into the hands of Major Gresham with his bridge on Barker IV.

The carrier had disappeared, and the six who remained walked slowly to the block-house four hundred yards away. With the third member of the group he spoke to, Winter had heard all about the station.

"You'll see him at once," Lieutenant Morley told him. "He doesn't keep himself to himself or anything like that. In fact, this is the softest job in the system, for we're here to guard a man who couldn't escape even if we all helped him, and there's nothing else to do but read, see films, eat and sleep."

"And play bridge," added Winter involuntarily.

Morley grinned. "You should have known better. The major will take the pants

off you, at five cents the hundred. Occasionally he makes the rest of us poor men at poker or gin rummy, but his heart isn't in it. There's only one thing that keeps the balance."

Winter looked at him inquiringly. Morley nodded to the blockhouse. "Him. He wins from the major and gives it back to us."

Winter smiled uncertainly.

"You can see how he was dangerous," Morley went on. "We're all his slaves. He gives the major little hints on how to play bridge. He quotes poetry to Cap Stone. He sings and plays the guitar, and between times keeps the rest of us solvent. He writes letters for us when we land in difficulties, and takes charge of any job to be done when no one else thinks he can handle it."

Winter caught the tone of amused, incredulous admiration. He couldn't very well miss it.

"He seems to get plenty of rope," he remarked.

"He does as he likes, as he always did. Colonel Martin is nearly finished here, and I can

tell you what will happen when he goes. The new colonel will be shocked at the conditions here, and he'll take steps to see that Tom's reminded he's a prisoner. Tom will take it all with a grin and in three weeks he'll be doing as he likes again."

"Tom?"

"Sure, why not? Tom Barker. What do you want to call him? The Tyrant? The Ex-Master? The Last Dictator?"

Winter smiled. "He doesn't sound like another Napoleon at that."

"I never read history. I don't know how Napoleon got on on Elba and St. Helena. It couldn't have been anything like Tom. He wasn't the man Tom is."

He saw Winter's uneasy glance at the other four, only a few yards from them, and laughed so that they all turned and looked at him.

"You can say what you like, Winter—what's your first name?"

"Jim."

"Well, there's no secret police here, nor anywhere else."

"Mars," said Winter briefly.

"Do they say that, now? I've been here a long time, and the radio crackles so much I don't often listen. So Mars is the trouble spot now. But there will be weeks to talk. Here, let's go first. Tom will want to meet you."

There was no airlock, for the whole asteroid had its envelope of air. It was only eleven pounds, but Winter had been trained and pressurised so that he didn't even notice. They entered by an ordinary door, walked along an ordinary passage, and went into an ordinary room.

There were five men in the room. Two were reading, one cleaning a gun, one playing the piano and the other turning over music on the top of it. They all looked up as Winter entered with Morley, and even the pianist stopped.

"Jim Winter," said Morley. He introduced Winter all round, saying names that meant nothing to him until Morley came to Tom Barker. It was the pianist. Like Napoleon, he was a little man; but he was too ordinary to be insignificant. He looked the

sanest man in the room, the most alert, the readiest to laugh. He should have been introduced as a villain, but it was as a conventionally modest hero that he shook Winter's hand and grinned at him. Winter had to tell himself that there were many kinds of truth, or what he knew of this man would seem like a lie.

Barker must have been forty at least, but he was a man who would never age; a small but well-proportioned man, dark-haired, who could act the part of a boy seventeen if he chose. The face was familiar, but the fact that it was as smooth and contented as in the pictures was surprising. Seeing him was like meeting a beautiful film star and finding unexpectedly that she was quite as attractive, off guard, as on the screen.

Major Gresham followed Winter in, rubbed his hands, unconscious of what he was doing, cleared his throat and was about to speak when Barker grinned and said: "Yes, I'm ready for a game, Major, but Winter will want something to eat first. This way to the kitchen, Winter.

"There's some cold ham and salad."

It was fantastic, the way the captive ran the station, arranged its diversion and handled its personnel. Winter wondered if he did it to keep his self-respect, using his fabled personal charm to ensure that no one around him could pity him.

But the truth was that if Barker was acting a part it was clearly a part he believed in. Perhaps if he had the chance he would destroy all the members of the station without an instant's hesitation. But at the moment all he wanted was their well-being.

Seven weeks later Winter had learned nothing about Barker, and he had stopped trying. Winter was no psychologist. Occasionally before, he had met someone he realised he would never understand. Pamela Stonehouse was one. He had stopped trying to learn anything about her, except when to ask her to marry him and get the right answer.

Barker soon knew about that, too. Her relayed letters had begun to come more

slowly—one every three days at first, then one a week, then a fortnight without one. Winter went mad with anxiety, seeing from her letters that it would only be a matter of time before they stopped and Pamela began to forget about him. But Barker reassured him.

"It's the way you write, Jim," he said. "She liked you—I can see it in the first letters. Then she began to wonder if she'd been mistaken about you, if the letters were real and not the man she remembered. You write about the wrong things, in the wrong way. Try this."

Winter tried it, and the letters began to come every three days again. It wasn't that Barker wrote his letters for him. It was that he, who had never met Pamela, was able to tell Winter about her, so that his letters touched her instead of missing wildly.

It didn't seem strange that Barker should be reading Pamela's letters, even the bits where she wrote about "Napoleon II," and was surprised that Winter could not hate him.

There was a strange bridge session one night, not quite two months after Winter's arrival. Major Gresham, Winter, Barker and a private whose bridge was his only talent, were playing. They were changing partners after every rubber, and Barker lost consistently—with Gresham, with Winter, with the private. It wasn't that he played badly. The cards didn't run for him. His finesses were wrong, he was caught out on distribution, his contracts were not quite there, his doubles were unfortunate. But mere bad luck couldn't beat Barker.

"Ah, well, you can't win all the time," said the major happily, at the end, pocketing his winnings.

"I see that," Barker admitted.

Winter stayed when the others went. No one would talk about it. It was normal.

"What was the idea?" Winter demanded.

Barker grinned.

"Bright, aren't you?" he said.

"It was all deliberate?"

"You said so, not I."

"But why? You can't fool anyone that way."

"I think I fooled the major."

"I doubt it."

"You don't understand, Jim. Don't you know how easy it is to lose a reputation? The old witch-doctors did. Fifty successes, then one spectacular flop. Long faces, suspicious glances, short memories. Another flop, another witch-doctor. It was as simple as that."

"Maybe. You a witch-doctor?"

"In a way. Or watch the sports pages. A team—any team playing anything—is an odds-on chance for a game in a fortnight. They get slaughtered the week before. Some writers say they had an off-day. But their previous record doesn't wipe away that failure. The day comes, they win easily, and everybody mentally reinstates them. Or they lose, and people say they're on the slide. It's always easy to lose a reputation."

"And why do you want to lose yours?"

"Easy. I'm going to escape. With you. We're going to conquer Mars, you and I."

It wasn't theatrical, that was the horror of it. When Barker said it, Winter could see it happen. The only way to stop it was to make Barker change his mind or kill him, and one was no easier than the other.

It was indescribable luxury to sit alone and light one cigarette from the end of the last and look into a blank wall. Winter had always had a weak throat, and he had always been a nicotine slave. Every time he smoked steadily it was fine while it lasted, but it caught up with him next day. He would cough, fight for breath, smoke a cigarette and be sick. It would be a week before he was right again, more if he didn't keep his smoking well down.

It wasn't worth it. He kept himself to ten cigarettes a day and had no more trouble with his throat and lungs than anyone else.

But now he knew he could smoke steadily for thirteen hours and never suffer for it. Just at the end, perhaps, his throat would begin to get ragged. But by that time he

would have other things on his mind, if he still had a mind.

There was a tap he knew on his door.

"Come in, Mary!" he called.

She came in and shut the door, but remained leaning on it, not intending to stay long.

"I'm afraid one of the girls is going to crack later," she said. "It won't be nice."

"Marjory?"

"No. Esther. She's like a lot of those self-sufficient characters. She'll go on being calm and independent, drawing on her reserves until suddenly there's nothing left. Marjory will be all right."

Mary said it; it would be so. All his life Winter had relied on the judgment of others on others. First his brother, then Pam, then Barker, then Pam again, and now Mary. They'd always been far nearer the truth, all four of them, than he would have been in his judgments.

"Is there anything we can do?" he asked.

"I don't think so. She'll upset the others if we leave her with them. But it would be horribly cruel to her to shut her up. I think she wants to

see you. Shall I send her?"

"She's like Pam," said Winter, half to himself.

"You can take it. You won't crack."

"No."

He grinned involuntarily.

"I think you have something on your mind. Can't you tell me?"

Mary would like to know. It was the kind of thing she could think over, tell Bob, of course, but no one else in a million years, even if she had a million years. They had their secrets, the Crispins, and they could keep them.

"No," he said. "I can't tell you, Mary."

"You can't tell me," she murmured in wonder, without a trace of hurt or pride. "Can you tell me why?"

"Sure. Because, though it can do no harm if we all die, there's always a chance we don't."

"How many millions to one?" It wasn't a question that demanded an answer. She knew possibly better than he did.

"More than that," he said elliptically. "Not one chance, but only a tiny bit of a

chance—and only because anything which is still alive may live on. The heart stops beating. And starts again. The green light says black moss, but maybe we've found something that it can't distinguish from black moss. Or black moss has suddenly decided not to kill."

"And for that chance—you must keep your secret." Now Mary, in turn, was talking to herself. "It must be big."

"Not really. It wouldn't be a surprise if you said 'Is that all? I've known it for years!'"

"Not to you. I'll send Esther."

"You don't mind, do you, Mary?"

She laughed. "Mind? No. It will give Bob and me something to think and guess about for the rest of our lives."

She took it for granted that she could share it with Bob. Naturally.

"The miners are all right, Bob says," she added. "They've all taken things nearly as bad as this before."

He nodded. When he looked up again, Esther had replaced Mary at the door. Unconsciously she was leaning back

against it in the same way, legs stretched out. Legs weren't one of Mary's good points. But they were one of Pam's...

"You wanted to see me?" she asked.

That was how Mary would put it. He cursed Mary briefly for making him have to think of the right thing to say. It had always been an effort. He had never been able to deal easily with people.

"It's good for everyone to talk," he remarked. "I thought maybe you'd like to. I know I would."

It didn't seem quite right to him, but apparently it did to her. And that was what mattered. She sat in the arm-chair opposite him and looked steadily at him. With an unexpected sense of the fitness of things she had chosen the simplest dress Winter had ever seen, a plain grey frock without an unnecessary button or stitch, nothing but a natural shape. There was no bracelet, no necklace, no ring, no watch; she wore makeup because she would have looked and felt strange without it, but she could not meet death

more fittingly—or looking more beautiful. Somehow, in her simplicity, he recognised quality he had previously missed in her.

"There really is no hope?" she asked.

He sighed. Black moss was a radiation that no one could see, hear or feel. So people who had passed through it, feeling the same as ever, always allowed themselves to hope until they felt the first dissolution in their own bodies. It was only to be expected. The girl opposite him was still physically capable of playing a hard game of tennis, running up and down stairs, lifting heavy weights or swimming long distances.

He shook his head.

"But we're relying entirely on that green ball? There's no other check?"

He looked at his watch. "Nearly two hours. There might be." He rose and went across to his bathroom, leaving the door open. He raised his voice to reach her. "Inanimate objects last longer, so we won't see things crumbling about us. But sponges show it early—ah!"

He came out of the bathroom and showed her his sponge. She looked at it closely. It had been an irregular piece, but it was beginning to make itself into a ball and lose its channels and whorls. Even someone who was unfamiliar with that particular sponge could see it had changed. Esther shuddered.

"That's the first thing to show it," said Winter. "We haven't the instruments to detect any difference in the walls or air. But really this check wasn't necessary. Nothing has ever been found to affect the green ball but black moss. Maybe some day a ship will be lucky and find itself safe when it believed itself doomed. But not this one."

"I'm glad I know. I'd hate waiting to see if it was yes or no."

"That's how I feel"

"And your astrogator . . ."

He didn't want her to talk about Shaw. Even if the youngster had been at fault there was no point in talking about it. He digressed wildly.

"Not 'astrogator,' please. Sometimes the layman gets hold of the wrong word and

stubbornly uses it instead of the right one. Like 'subconscious.' It was a man named Freud who discovered the unconscious centuries ago, and called it the unconscious. But for some reason people preferred their own word for it, and they won in the end. Even the Freudians call it the subconscious now."

"And what's wrong with the word 'astrogator'?"

That was good, that she could even pretend to be interested in etymology. She was all right yet.

"Some ignoramus in the past thought 'navigation' had something to do with guiding ships on the sea, and thought 'astrogation' would mean guiding ships among the stars. But 'navigation' came from *navis*, a ship, and *agere*, to drive, and is still right for star-navigation. 'Astrogation' would mean driving stars about."

She grinned. "I have to admire a man who can lecture at a time like this," she said. "Do all captains study the derivation of words in their spare time?"

"No, I got that at second

hand from a man you may have heard of. Barker."

As he had hoped, she was more than ready to forget Shaw and talk about Barker. She stared at the mention of the prosaic name that had ceased to be prosaic in one generation and had been hurriedly changed by millions of Barkers on three planets. "You mean you're *that* Winter?"

"Yes. I thought you knew. After all, we've just come from Ceres. This ship landed him there six months ago."

"Tell me about him. What is he like?"

"You could have found out any time you liked on Ceres. He would have talked very charmingly to you and given you a ring or a bracelet, just for being a pretty girl."

"Oh, I'd never have dared go near him. They say he can do everything. Is that just a legend?"

Winter grinned. "Surely he hasn't had time to become a legend yet—again? No, there isn't much he can't do. But don't think he's a god or a superman. He's just a highly intelligent man with varied

talents. He knows everything because he was always interested in everything. If you and I understood and remembered all we'd ever heard in history, music, philosophy, science, literature and art, we'd seem to know just about everything, too. Well, we would if we'd been really interested in it. Barker is never at a loss, because everything he learns goes into a huge, live framework of knowledge, not a jumbled notebook of fact, superstition and memory. He never forgets anything that matters, because it's not an isolated entry somewhere, but part of a structure, always available until the whole structure falls down. No, what made Barker what he is was just intelligence, versatility, and his faculty of being engrossed by anything, literally anything. The rest was inevitable."

Esther accepted the cigarette he handed her and let him light it. "Do you mind if I ask something? Something a lot of people must wonder?"

"Not in the least." He knew what it was.

"Why are you—almost

Barker's right-hand man—captain in a spaceship, trusted, allowed to see him when you like?"

"Because they can make you tell the truth nowadays and know it's the truth—despite anything even a man like Barker may have tried to do. And they know I want Barker exiled for ever. They know that I'm not against I.P., and never have been."

"I see. You were a sort of prisoner of Barker's, all along?"

"Not exactly that. Didn't you read about the trial? There must have been enough written about it to fill a thousand Bibles."

"No. I never read murder trials, and yours and Barker's were described in the same way by the same reporters. Sorry if that sounds . . ."

"Never mind how it sounds."

"Anyway, I knew you were technically cleared, but I didn't think that meant you were still an I.P. officer, even in charge of the ship that took Barker to Ceres."

"You're not the only one. But in the I.P., not guilty is

not guilty. The matter's closed"

He told her the story. It was a long story and helped to pass the time. What he told her was nothing but the truth—yet nothing like the whole truth.

He couldn't make Barker change his mind, and he couldn't kill him. Later, Winter marvelled at the assurance which had made Barker tell him the worst first and then persuade him into doing it. Anyone else would have worked on him gradually and reached the climax when the way had been prepared for it—not as a bombshell that threw himself in Winter's hands.

"What would you say," Barker asked him that night after he had brought out the first mention of escape, "if I told you I'm not a Bloody Tyrant at all, but a Saviour of Humanity? Don't spare my theoretical feelings. Go on, now, and laugh."

But Winter wasn't laughing.

"Look at it this way," Barker went on. "Do you think I'm the sort of man

who would get any satisfaction from sitting on top of a world, having everyone run to do as I told them? Reaching that position, yes. I was made to build empires—or pull them down. But it's too easy being a successful dictator. Look back on history. The dictators all decayed in success, because the comparatively easy business of keeping an empire was no outlet for the driving force needed to win it. No, I'm no emperor, Jim. Making empires is my game."

"So you want to make a new empire—just to break it down again?" asked Winter ironically.

"Not quite. I want to make a new empire, yes. But I'll have to let someone else break it down. The I.P. again."

Barker was beginning to make sense—dangerous sense. Winter fought against reason.

"The history books are already admitting that I helped human civilisation on a thousand years," said Barker. "They don't admit I meant to do it, because they don't know. When I built the Venusian Empire, there was only one

way to do it—to write its constitution in blood. If I hadn't done it, it would have taken at least a thousand years before anything like the Earth-Venus Alliance came about.

"I couldn't sail straight to my goal, of course. I had to go away off at a tangent, and let I.P. complete the curve."

"And forty million men died."

"More," said Barker blandly. "Far more. Forty million died in the war itself. But another twenty million at least died in the building of the empire. I don't think men ever died more valuably. It was worth every million."

It was sledge-hammer sense. Inhuman sense. The Earth-Venus Alliance was the most beautiful thing in history. It was something that could not fail. It was hope for thousands of years. Its perfection put an edge in Winter's voice as he asked:

"And what do you want to do now—break it up again?"

"Oh, no," said Barker mildly. "Earth-Venus is perfect. But Mars isn't. I want to bring Mars in, too."

A light burst in Winter's mind like a rocket, leaving him shaken with the knowledge that he was going to help Barker in his plans, despite the millions more who would die, another savage wound on the same battle-weary generation.

"It would be better in another hundred years," Barker admitted. "A hundred years for the Earth-Venus Alliance to grow and temper itself into the great thing it will be, and for Mars to seethe and surge in terror and despotism. But unfortunately I won't live for ever, and I might lose my own gifts if I wait too long. I can't trust another Barker to be born in a hundred years. I have to do it now. Premature children often grown up strong and healthy."

"Have you had something to do with this trouble on Mars?"

"Me? No. I have no organisation—only millions of Venusians who wouldn't stand for my death. That's why I'm here. After this, I still won't die. Maybe the Venusians by that time will be ready to

allow it, having fought against instead of for me; but instead there will be millions of Martians who will only enter the Earth-Venus Alliance if my life is spared. Think of it, they'll lose millions, but the leader who brought about the loss mustn't be harmed. Next time they'll put me somewhere else—I'll try to make it Ceres."

It was fantastic the way he assumed success, foresaw failure and exile, and even chose the place of his second exile before he had escaped from his first.

"I was glad to come here the first time," Barker observed reflectively. "There's something beautifully ironic about a man being exiled on an asteroid he charted and named. I was glad they didn't become vindictive and rename it Persephone or something similarly meaningless from classical mythology."

There was no argument. Barker had chosen the right man. Winter was no sentimentalist. His soul writhed in horror at the thought of the death of millions. But at

the same time it reached out blindly, wonderingly, toward the great thing an Earth-Venus-Mars Alliance could be on the Barker plan. For Winter never doubted that. The layman had to trust the doctor, the mechanic, the dentist, the architect, the builder, the designer. He had to believe blindly when his foot was the first to tread a new building that the edifice would not collapse with him. And Winter trusted Barker's plan—if he could only trust Barker.

"Why am I necessary?" he asked.

Barker grinned, but it was only a gesture. "The dictator, the emperor, always needs someone he can trust," he said. "He can't be awake twenty-four hours of the day, or be in two places at once. You're not the first to know of the larger plan. There was another young man, the Sergeant Williams you've heard about. He knew the whole scheme for the Earth-Venus Alliance long before anyone else but myself had any idea it was coming. Unfortunately, he didn't live to see it. I've

always been sorry about that. I'd have given a million other men to have George Williams see that he hadn't been wrong to trust me."

No doubt he would, Winter thought.

"But only he and you must ever know," said Barker, with sudden vehemence, underlining his words. "Can you understand that? Ordinary men are not made to see how they've been controlled, pushed into pre-arranged paths. Not until centuries have passed, and then it no longer matters to anyone. Some day someone will write a book suggesting that I may have planned the Earth-Venus-Mars Alliance, and a few savants will say it's an interesting idea, but prove it's no more than that. And the man in the street will never even hear of the theory.

"Do you understand? Whatever happens, win or lose, you must keep the plan behind the plan to yourself. You'll marry Pamela Stonehouse and have children. She and they must believe that I was a half-mad despot, nothing more. Do you see that?"

Winter saw it. At the time he thought, sententiously but sincerely, that the ways of gods should not be shown to men. He was yet to learn that Barker was no god, no knight in shining armour.

Esther asked Winter anxiously, the next day: "Is he really as black as he's painted?"

Winter was weary with the effort of telling half a story and making it sound like the whole story. "I know him better than any man alive," he said, "and I can't tell you. I've learned one thing from being with him that I ought to have known if he'd never lived. There's no such thing as black and white. A creature who was wholly good or wholly evil wouldn't be human, and if he was ever born we'd shut him up.

"Barker's no saint and no devil, though often he'd seem like one or the other. I've seen him as brave as any man and as frightened as a school-girl. He . . ."

"But was he as . . . cruel as the newspapers said?"

"Oh, yes. A man like him had to be cruel." Winter lit

another cigarette and went on telling what was true, but only some of the truth.

"It's not much use telling you about isolated acts of cruelty, for you wouldn't see them. It would be like the things we read in any newspaper. Woman shuts child in dark room for twelve years. Schoolboys throw dog down quarry three times, pour kerosene on it and set match to it. Man kicks sixteen-year-old girl in stomach, sets fire to her dress and piles firewood on her. It would make us sick to see anything like that happen, but when we hear about it we just shake our heads and think about something else.

"Barker was cruel, but there's no point in telling you about it. You wouldn't see him grinning because a man wasn't dead after all, and could take another hour of torture. Even if he were naturally gentle and hated causing pain, he'd have had to make himself cruel. But he isn't. The papers called him a sadist and they were right. On Mars he did all the things that terrorists have always done—but terrorists haven't

usually had his incredible inventiveness."

"Yet they followed him—those same Martians," murmured the girl. "They loved him. They wouldn't let him die, though thousands of their own generals were executed for far less."

She made a sudden gesture of dismissal. "Let's forget all about Barker. We've talked of him enough. Strange, people have a natural sympathy for him. I'd have liked to hear you say he could be kind and honourable, and didn't hurt for the sake of hurting. But I don't want to hear the story of how inhuman a man can be."

She rose from the chair in one quick movement and moved about the room restlessly, letting Barker's ghost, the ghost of a man who would live long after she and Winter were dead, withdraw and lose its hold on them. Suddenly she turned and stood tense.

"Kiss me," she said. "That's one way to forget."

"Not a good way."

"What does it matter whether it's a good way or not? What difference does it

make that if it hadn't been for the black moss I'd never have said more to you than 'Pass the salt' or 'I wonder what time it is'?"

Suddenly, they heard the unmistakable crack of a shot. They looked at each other, and ran from the cabin.

It was Shaw, of course. Having no interest in Shaw now that he was dead, Winter shot a quick glance around the people in the lounge. Before they had time to recover, to act parts again, he had seen who murdered Shaw. Marjory most, and she knew it, standing with a lost, tortured expression on her face; Hawkins next, though his set, stubborn expression showed that he did not blame himself. Then, perhaps, Esther, though her effort alone would not have been enough.

Not one of them had had any part in firing the shot, of course; Shaw had done that himself. But it had been Marjory, Hawkin and Esther who had made him fire it with what they had said to him, and all the others, except the Crispins and him-

self, with what they had not said. Black had not thought about it, Winter guessed; but he had contributed by letting Shaw imagine he had.

"Pretty," said Winter harshly. They were all in the lounge by now, everyone on the ship. He was hurting them all except the Crispins, Marjory most of all. He meant to do it. "Now you've got him out of the way, who's next? Is Souness the next scapegoat, or me?"

"Don't, please," said Marjory unsteadily. "I didn't know . . ."

"The excuse of all history," retorted Winter bitterly. "I didn't know. I never thought." Why didn't you think? Leave him where he is. It won't be long enough to matter."

"No, not that!" Marjory screamed. "Do you want me to shoot myself, too?"

"Has it sunk in?" Winter asked brutally. "Do you know what you did? Or are you just sorry he gave up his last few hours, but quite sure you didn't murder him?"

Marjory broke down completely. With a shrug, Winter took the body by the shoul-

ders and Smith moved forward to take its feet. They bore it off to the airlock. When they returned Marjory was dry-eyed and startlingly sane. She had found an escape from responsibility.

"That's the best way," she said wonderingly. "Why don't we all die? They guard prisoners condemned to death, to make sure they don't kill themselves. That's because it's crueller to make them wait. But there's no one to guard us. And here I am sorry because Shaw killed himself. He was wiser than any of us."

Winter glanced round the others. "I'm going back to my cabin," he said. "Shoot yourselves if you like. It isn't my problem any more."

"Don't say you're going to break, after all," said Mary quietly.

"Do I look as if I'm breaking?"

"Yes."

He laughed, and the sound was healthy and sane. "Maybe I've seen too many people die," he retorted. "Certainly too many to break because of a few more, including me." He paused at the door. "Does

anyone else want to talk to the father confessor? Because it's free. How about you?" He looked at Marjory.

"I would like to talk to you," she said in the same quiet tone. "But not when you're like this."

"I'm not like this. You only think so." He took her gently by the arm and led her to his cabin.

Sometimes it seemed as if everything was on Barker's side. Anything he wanted was at hand, anything that had to be done he could do. He had been making a deep-space vessel of the little launch that hopped about the asteroid, secretly, alone. No one had thought it was possible, so it had been easy for him. Everyone had known he spent a lot of time working on the launch, but no more than he spent on the atmosphere plant, of which little of the original remained, on a new wing he was building to the blockhouse, on a dozen other things. It had been simple for him to make the launch run imperfectly now and then, each time a new fault, and it

was the natural thing for him to work on it again. Not one thought there was any danger that with a few spanners and some sheets of tin he could make the launch capable of space flight. Not until he and Winter were gone on it.

And sometimes it seemed that Barker had to fight for every inch as if it were a mile. Why should half the stolen provisions turn out to be bad, for example; why should the launch land on Mars in the first storm for years; why should Iden, the Martian general, after promising co-operation in which he had nothing to lose, unaccountably go over to the Alliance? There were some cruel tricks on Barker's road to power for the second time. He and Winter were often alone, always in danger, and there was plenty to destroy forever Winter's earlier belief that Barker had only to whistle for a wind and it blew.

But they built their new empire so swiftly and surely that by the time the Alliance even knew Barker was on Mars—he had been expected,

not unnaturally, on Venus—it did not dare attack without preparation, and Barker was given further invaluable time. By that time only Iden, the Controller, had more power on Mars. It was soon after that that Iden went over to the Alliance. Barker had not foreseen it; he raged and swore like a very little man, a man of soft alloy, when it was known. Yes, Barker could be wrong. He had let Iden go over to the Alliance with a third of Mars' potential. That was no part of his plan.

For a time Winter ruled Mars alone. Barker's only hope now was what he could find in his laboratory. Barker would soon be an emperor without an empire unless Barker the scientist came up with something good.

He had to—he did. It was an inhuman device, but that was nothing to Barker. He found his weapon and he found its carrier. The weapon was madness, and the carrier was light. The combination was the most brilliant example of Barker's genius. His weapon fused the human brain so that, instead of moving along a channel,

a thought spread like a pool of ink on thick blotting paper—except that the process was almost immediate. It was a simple thing, an electrical field which might in theory have been a means of higher thought for ordinary men. In practice it was horror and death.

A man in such a field tried to do everything at once. In his mind were thoughts of smoking, driving a car, walking, swimming, kissing a girl, fighting. His body was told to do them all. But it was not merely the conscious or nearly conscious functions of the mind that were disordered. The automatic functions went the same way. So his glands stopped or overloaded themselves and the rest of his body, and he might die at once or not until he suffocated himself or over-oxygenated his blood and passed into a trance from which no one ever wakened. No one ever lived more than 'five minutes in the field.

But the field of fusion had a range, at first, of about three feet only. Not until Barker succeeded in loading the new

energy on light, like a man on horseback, did he achieve what he wanted. Then . . . a good searchlight on Mars can reach Earth. What matter if it is only a pinpoint visible in perfect conditions through a telescope? The light reached Earth. And so did the field of madness.

It was perfect. It was exactly what Barker needed. It was the most hideous, most powerful weapon ever devised. It gave him at once the power he needed. But that was only what everyone knew. What only he and Winter, at first, knew was that it was not nearly enough. It could be beaten. Light could be stopped, shielded. Barker had built his second Empire on a terrible weapon, but one which would not save it. And then, at last, Winter knew he could trust Barker.

Winter had sometimes wondered why no one had noticed that all-revealing factor in the Second War. Barker used his weapon to kill millions, men, women and children, but not to rule the system. Why were people satisfied

with shallow explanations of the fact that Barker had not swept Earth and Venus with such devastation that surrender would have been automatic? For they were. They believed that Barker was not as cruel as they had thought; that an emperor must have something to rule; that Barker had waited too long; that there had been sabotage—anything but the truth, which was that Barker would kill millions without a qualm, but had never had any intention of destroying the Earth-Venus Alliance.

The madness weapon went on being perfect. Once it was in operation, Barker had only to pretend to lose a battle gracefully. His ships killed whole cities, a careless beam from Mars destroyed more life than all his ships. And when Earth was duly warned, the beam from Mars enfolded Earth fully for the first time. The toll was still enormous, but nine out of ten people were screened by this time, and no one saw that Barker had planned that, too.

It was easy to make the war costly and still lose it.

Barker refined his original beam once or twice, not to make Mars' capitulation too easy. But in the end he apparently reached the limit of refinement, and Mars was crushed.

Winter never knew how much was planning, how much brilliant improvisation. It was clear before the last Martian ship was accounted for that Barker's dream of an Earth-Venus-Mars Alliance was coming true. He had managed to keep it a comparatively romantic war. Martians, Terrans and Venusians had died bravely, respecting each other—divided only over Barker and his weapon. He had kept the hate personal, so that the men who landed in their hundreds of thousands on Mars from the I.P. ships were ready to drink Martian wine and kiss Martian girls, and blamed everything on Tom Barker and the renegade Winter. Through the war the familiar refrain had run: It's not the Martian people we're fighting . . ."

When they had him and Winter, they did exactly as Barker had predicted. He was

able to save Winter completely. Pamela Stonehouse helped, by being there, by being in love, by being beautiful. She fell in love with Winter automatically when everyone was against him. She was that kind of girl. They were married long before Winter's fate was settled. Through the years of Barker's trial and Winter's afterward, they were happy—Pam because she believed in Winter utterly and sincerely, and because she also believed in justice. And Winter because he believed in Barker.

The judge said: "And you aver that this man worked under compulsion, day and night, for eighteen months—as your only trusted aide?"

Barker said: "No. He was not as trusted as he thought he was—but I knew he was no traitor. He worked with me and for me because he thought he could restrain me. Up to a point he could. You have his psychological record. You know he was working for humanity to the best of his ability."

At times Barker went dangerously near revealing

the whole story, so that Winter caught his breath and looked at him and wondered if he knew what he was doing. He would tell a lie and know it would be believed; and he would tell the truth confidently, honestly, knowing that no one would believe it. He got a "not guilty" verdict for Winter—he and the transparently honest Pamela Winter. And perhaps something else. Through all the lying and subterfuge and traditional procedure, Winter still believed that he deserved to be acquitted, independent of whether or not Barker could work another miracle...

Marjory talked, in his cabin, of her home, her family, her hopes, her whole life. It was refreshing to listen to her. She was twice the woman he had thought her. With the thought came the realisation that, unlike Esther, she had completely ceased to be a woman. She had fought as a girl, using and striving against sensuality, her beauty, her personality, her history. Now she was going to die as a human being, cleansed by the

affair of Shaw, of knowledge of her youth, her beauty, and any responsibility for the disaster.

He was surprised she didn't talk of Barker, too. Everyone seemed to talk about Barker to Jim Winter. Perhaps they wanted to test their judgment against the trial. Perhaps they were only interested in Barker.

Then it came.

"Do you want to stay here?" he asked gently. "Or would you like to be with the others?"

She stared, and he knew she had felt nothing. Perhaps it would be longer with her. Then awareness came into her eyes.

"I'd rather be with the others," she said steadily. "Are you staying here alone?"

"Yes. But there's time for one last round."

He led her to the lounge. Everyone was there except Esther and Souness. He handed Marjory to an arm-chair, and wondered if he should go for the others. Mary saw him wondering, and shook her head.

He had one last look

around them; the three miners playing poker with Crispin, who was winning; Mary looking on. Black on a couch smiling coldly to himself, looking at nothing—no one would ever know his secret now, Winter thought, nor mine, either; Marjory, as calm as Mary. He raised his voice so as to take in them all.

"I wouldn't move much more if I were you," he said. "All right for the next twenty minutes or so. But better make sure at the end of that time you're comfortable and relaxed."

He waited, but no one said anything. Everyone looked blankly at him, except Mary, who knew she would not see him again, and who smiled a farewell. He went out and closed the door.

Outside he paused. Mary had shaken her head, but he had to tell Esther and Souness. Then he realised he didn't have to. Souness should know as much as he did about black moss.

He climbed the stairs to his cabin for the last time.

He lit a cigarette and calculated. He could smoke three more. He would be able to drop the last from his lips on the floor. There was nothing to burn—as if it mattered.

He wondered if he hated Barker. But as usual, his mind wouldn't help him out. Why had Barker given him life and then taken it away? A sudden thought shook him. Was Barker right—again? If Pam had been with him constantly, he would probably have told her the whole story. He had known Pam slightly as one of the girls, then better as a mail girl-friend, and then for two years as a wife. But then there had been the trial hanging over him, and he had been a prisoner, even if a prisoner without visible bars.

Would he, back on Earth with her, have told her?

He was leaving the service. His last job had been to land Barker on Ceres, wait six months, and take the ship back. Then he did—what? He had always meant to settle that with Pam. But was Barker right?

Was his secret, the secret which he said mattered so much, in danger?

So Barker was right. Barker had always been right, in the end. Winter, he was now prepared to believe, was like a murderer caught before he decided to commit the murder. He had told no one who and what Barker was, but he was ready to break that silence. Barker would not have killed him otherwise. He had never meant to kill him—until at last he knew it was necessary.

Why did everyone make it so easy for Barker? He and Shaw had visited him for the last time. Shaw hardly knew him, but was already fascinated.

"Taking the straight line back?" Barker had asked no one in particular.

"Yes," said Shaw at once, as Barker must have known he would do. "It's a new route."

"Not entirely. I was over it once. When I was just an explorer. I had two ships." He paused and went on regretfully: "One of them was lost. Bad business."

"What was it?" Shaw demanded, scenting another of Barker's always fascinating stories.

"Nothing that need concern you. Here's the figures."

Shaw stared at him in that familiar admiration. Rapidly, without pause for thought, Barker had done the whole job of navigation from Ceres to Earth—on the theoretical side, at any rate—as they talked. It was impossible without tables. Except to Barker, the man who could do the impossible in his sleep. Shaw knew the figures would be right.

They were right, Winter thought. Barker had done his best for him. He had given him two years of happiness. Winter would never know for certain when Barker had planned to kill him—perhaps back on Barker IV, perhaps only as he talked to him and Shaw that last time. *Two ships—one was lost. Black moss. Nothing that need concern you.*

The door opened. Esther burst in. She was not pretty.

Her dress was torn, she was dirty, and she was quite mad. She looked at Winter wildly.

"What did you do with Souness?" he asked quietly.

She giggled. "You'll never guess." She thought, and remembered something. "Souness? George? He's dead," she told Winter. Suddenly she pitched on the floor. It wasn't the black moss—at any rate, not principally the black moss. She lay and looked at him.

Then she began to scream. She writhed in an effort to get up, and couldn't do it. If she had been sane she could have done it in a dozen different ways. She seemed to be trying to flip herself to her feet with her stomach.

Unhurriedly, Winter reached for his gun. He looked along it.

"Yes, please," she said suddenly, eagerly, breaking off her screaming. But he knew that didn't relieve him of any responsibility. She still looked like Pam.

He fired once. He was

sorry about the noise. The others would hear it and would never know what it meant. Those who were most curious would be afraid to leave their couches, and Mary and Bob, who would know there was still plenty of time, would neither move nor tell the others it was safe.

Esther was dead. He wondered whether to move her, decided not to. She was pretty again. The bullet had sped through her hair, and a last jerk had cast a golden cloud over the wound, so that it was invisible from where he sat. There was a lot still to think about, and he didn't mind doing it while gazing at a girl who looked like Pam.

He thought. He had time to get everything in order. That seemed important. But presently he was lighting his last cigarette. He knew that from the time it took to light it.

He was sorry about that. But his throat was getting thick anyway—and not because of the black moss.

*Good-bye Tom, he said.
Goodbye, you murderer, you
genius . . . you . . .*

Logic isn't always correct, not when dealing with divergent cultures, because one man's premise needn't be another's

POINT OF VIEW

by DOUGLAS WEST

AT FIRST THEY STAYED within the ship for fear that, when the rescue party came, they might leave without them. But there was little to do aside from preparing meals, checking to see that the automatic crash-beacon was still sending out its signal, and talking about the accident until both of them were heartily sick of the subject. Not that there was much to talk about. One minute the big starship had been humming its smooth way through hyperspace on its way to Sirius IV, the next the alarms had sounded, the emergency lights had glowed blue, and everything was chaos, panic and insane confusion. When it had died

Malchin had found himself in a lifeshell, alone but for Carter, with the glowing bulk of the starship winking out behind them as they emerged into normal space.

Finding a planet nearby had been sheer luck. Landing the lifeshell without scattering it over a square mile of plain had been due more to the automatics than to Malchin's experience. Now he and Carter were stranded with no hope of ever leaving the place aside from the coming of a rescue party.

"How long will they be?" asked Carter for perhaps the hundredth time. He was a small man with an expression of perpetual worry, and was addicted to the wearing of

old-fashioned spectacles which he took off and cleaned when in deep thought. He was a school teacher returning from his vacation on the Home Planet, and Malchin, himself a go-ahead business man, had little patience with him.

"I don't know," he snapped irritably. "The signal light is on, so I guess the beacon is working as it should, but how long it will be before a ship comes for us is something else."

"We've been here for five weeks now," said Carter. "That's seven weeks since the accident."

"I know it." Malchin shrugged and stared through the single window. "Space is big, Carter, and maybe a ship hasn't yet picked up our signal. Don't worry about it, they'll get here as soon as they can."

"I hope so," said Carter. He took off his spectacles and wiped them with his handkerchief. "We're getting low on water, Malchin; another two days and the tank will be empty."

"We can get more," said

Malchin. "I spotted a stream about two miles away as we came down. We won't die of thirst."

"That means going out of sight of the ship, doesn't it?" Carter seemed even more worried than before. "Is it safe to do that?"

"Why not? The air is breathable and the climate mild. We've already taken short walks over the plain and nothing's happened to us. We've seen no animal life of any description, and as far as we know there are no natives here." Malchin turned from the window and stared distastefully at the cramped quarters of the single compartment. "Personally, I'm getting sick of sticking inside this wreck."

"We have to stay here," said Carter quickly. "For when the rescue party arrive."

"We could leave a note," suggested Malchin. He shrugged at the other's expression. "All right then, I'll tell you what I'll do. I'll take a container and fetch some water while you wait here. Right?"

"I suppose so," said Carter

slowly. "We do need water, and I suppose that it will be all right. But you'll take care?"

"I'll watch it," promised Malchin. He grinned, conscious of his own superior bulk and courage. "I'll take one of the projectors, you can have the other one, and if I see anything I'll shoot first and ask the questions afterwards." He chuckled and slapped the little man on the shoulder. "Stop worrying, Carter. There's nothing out there to hurt me. This is a sterile planet; there aren't even any natives."

He was wrong.

The journey to the stream took longer than he thought, and it was getting dark by the time Malchin came within sight of the lifeshell. He grunted, setting down the five-gallon container, and flexed his arm to ease his muscles. The projector was awkward; it kept slipping from his shoulder, and he tightened the sling, hoping that this time it would stay in position. He was stooping to pick up the water can when

he became aware of the figures.

They were all around him, almost invisible in the tall grass, small shapes something like an animal but disturbingly familiar. Malchin released his breath in a long sigh, turned suddenly and stared back the way he had come, then, cautiously, picked up the container and continued his journey towards the ship. He was nervous, the skin prickling between his shoulder blades, but he forced himself to walk steadily towards the haven of the lifeshell. He was sweating when he slammed the door behind him.

"What's the matter?" Carter, his thin face anxious, stared at the big man. "Has anything happened?"

"We've got company." Malchin slipped the projector from his shoulder, stood it in its rack, and crossed to the window. He stared out into the deepening gloom.

"Company?"

"Animals, or natives, I wasn't sure which, and I didn't stay to find out." Malchin touched a switch and the skin-lights suddenly

blazed, illuminating the immediate area with their fierce glow. Small shapes, caught in the glare, froze before dropping down into the tall grass. "See?"

"Pygmies," whispered Carter. "Or monkeys? Which?"

"Not monkeys," said Malchin thoughtfully. "At least, they have no fur."

"Some have weapons." Carter bit his lips as he stared through the window. "Naked for the most part, though one of them seemed to be wearing some sort of necklace." He reached out and killed the lights. "Save power," he explained. "We need all we can for the beacon."

Malchin nodded, his face thoughtful. He wasn't afraid; the projectors contained enough energy to incinerate a square mile of forest, but he was interested. The natives—already he was thinking of them as such—had obviously seen him as he collected the water. That presupposed a village of sorts and that, again, presupposed a culture. It was possibly a very primitive culture, but a culture just

the same. A man, a shrewd business-man, could do many things with a primitive culture, especially if he were armed with the technology of modern civilisation. He said as much to Carter.

The little man looked dubious.

"I don't agree. For all we know they may consider us their enemies. Primitive cultures always fear the unknown, and the result of fear is always hate-induced violence. They are probably just waiting for a chance to kill us."

"Nonsense!" Malchin was very positive. "They may be afraid of us, yes, but that is all to the good." He expanded his theory. "Look at it from their point of view. They must have seen the ship land and, to them, it would appear as if we have come from the stars. They can see the stars on this planet and they probably have a concept of Gods dwelling on them. So that makes us gods. They have only just shown themselves because this is the first time either of us has been very far from the ship. I'd guess

that they've been watching us ever since we landed."

"Then why haven't we seen them before?"

"Probably because they've been hiding in the grass. After all, what would you do if something big and mysterious suddenly landed in your backyard? Wouldn't you watch it for a while before making any sort of move?" Malchin grinned. "Of course you would, and you're a civilised man. These people are just savages. I tell you, Carter, that they consider us gods, beings from the stars, and if we work it right they will bring us all the water and food we need. They might even build us a house and become our servants."

"What's the point?" asked Carter. "The rescue party will be here soon."

"Maybe, and then again maybe it won't." Malchin became serious. "Let's not delude ourselves about that, Carter. Space is big and ships are few. Our signal isn't very strong and won't last for ever. It's possible that we may have to wait years for rescue, if it comes at all. I

say that the quicker we get comfortable here the better."

He frowned at the other's hesitation.

"All right, then, tell me the alternative. We need water and the stream is a long way from here. We either make friends with these natives or turn them into enemies. Making friends means lowering ourselves to their level. We can't do that and it would be dangerous if we could. The only way we can remain safe is to be what they think we are, gods from the stars. That way we'll get what we want and remain safe. No culture ever rises to destroy its gods."

"You seem pretty certain that they do think of us as gods," said Carter dubiously. "That isn't necessarily the case. They could think of us as something quite different."

"No." Malchin was quite positive. "I'm certain that I'm right." He yawned. "I'm tired. Let's turn in now and see what tomorrow will bring."

Tomorrow brought their first offering.

It rested on the ground

outside the airlock, a wide, shallow basket of woven reeds filled with succulent fruits and unfamiliar vegetables. Malchin stared down at it, his mouth widening into a grin. Then looked triumphantly at Carter.

"Well? What did I tell you?"

"It's significant," admitted the little man. He stood in the open doorway, the projector he carried making him appear even more ridiculous than normal. "What do we do now?"

"Accept their offering." Malchin squatted down beside the basket, selected a fruit, bit into it. He chewed, swallowed, reached for another. "Not bad. Try some."

"They could be poisoned." Carter sat down and gingerly helped himself. "They may be incredible as far as we are concerned."

"I doubt it." Malchin was enjoying himself. It had been a long time since he had eaten fresh fruit. "This planet matches Earth too closely for there to be too much difference in the flora. Even the natives are humanoid."

It was illogical thinking based on wrong premises, but Malchin didn't worry about that. He ate more fruit, wiping his chin on the sleeve of his tunic, then tensed as movement became apparent in the tall grass surrounding them. "Here they come," he said quietly. "Give me the projector."

"Danger?" Carter swallowed as he passed over the weapon. "Should we go back inside?"

"No." Malchin rose, the gun at his side. "Going back inside will accomplish nothing. They have brought us gifts, we have accepted them, and now they are coming to pay homage to their new gods." He smiled possessively at the advancing natives.

In the daylight they looked even more primitive than they had before. They were small, not over two feet in height, dirty, naked aside from a few who wore necklaces, and seemed more like stunted children than anything else. Their skins were an oyster grey, their bodies scarred in what was an obvious symbolical pattern, and most of

them carried weapons, spears, clubs or heavy stones. Their hair hung behind them in a lank, verminous-looking mass, and their teeth, as they parted their lips, showed as a row of sharp white points.

Malchin let them advance to within a dozen yards then held up his hand. They halted, staring at the two men with bloodshot eyes.

"Ugly lot of devils, aren't they?" Malchin stared at the natives, leaning on the projector at his side. "How do you like your worshippers, Carter?"

"I don't." The little man sweated with fear. "I don't like them a bit. They look too savage for my liking."

"Primitive," corrected Malchin. "You can't really call them savage, just primitive." He chuckled. "Still we're lucky at that. If they weren't so primitive they would recognise us for what we really are, a couple of stranded travellers. Instead of that, they obviously look on us as gods."

"You keep saying that," protested Carter nervously. "I'm not so sure."

"Why not?"

"Well, look at all those spears and things. Would they be carrying them if they thought we were what you say?"

"Of course they would. To a primitive man the carrying of his spear is as natural as a modern man carrying a briefcase." Malchin snorted his impatience at Carter's objection. "The trouble with you, Carter, is that you've no imagination. You just can't accept a different point of view. You wouldn't think of an interstellar traveller as being a god because you know too much about it, but these people have never heard of spaceships; they probably haven't even heard of metal or plastic. We arrived from the sky, we are three times their height and we dress and look totally different. To the primitive mind there can be only one possible explanation to all that. We are gods. Simple."

"Perhaps." Carter still didn't seem happy. "Well, assuming all that, what do we do now?"

"Teach these monkeys to

look after us." Malchin stared towards the surrounding natives. "Go in the ship and get me the water container. Bring it out and put it in front of me."

Carter hesitated, then obeyed. Malchin handed him the projector, picked up the almost full container, and, opening it, tipped it over. Water gushed out to be absorbed by the arid soil.

"Water," he said distinctly. He held up the container, pointed towards the distant stream, then swept his arm back towards the ship. "Water. You fetch water." He rested the container on the ground and pointed at a native. "You! You fetch water."

Nothing happened.

"Bad communication," said Carter, interested, despite his fears. "They don't understand you."

"They will," said Malchin grimly. He glowered at the native and then tried again, sweating a little as he went through the pantomime. He swore when he achieved exactly the same result.

"Give me the projector," he said grimly. "This has

gone far enough." He took the weapon, held it in his right hand while he repeated the pantomime with his left, ending by pointing towards the same native. "Water," he gritted. "You fetch water."

He waited five seconds then blasted the native into smoking ruin.

"I can't understand it." Malchin stared desperately at the wooden bars surrounding them. "Logically, I was doing the only thing possible. Primitive peoples always fear their gods and expect immediate punishment and death if they disobey."

"You made a mistake," said Carter. He was shivering with fear. "We should have stayed within the ship."

"What for?" Malchin was irritated with both himself and the natives, and took it out on his companion. "Without water and with little food that wreck would have proved our coffin. We had to impress the natives. I had to shoot. If I'd let him get away with rank disobedience then the others would have lost their fear of us."

"They did that, anyway," pointed out Carter. "Some of them had climbed to the top of the ship even before you fired." He wetted his lips. "That meant they intended to jump us from the beginning. That offering was made to lure us outside."

"Perhaps." Malchin jerked to his feet and began to stride about the tiny compound. After their capture the natives had put both men inside a roughly-built structure consisting of a hut, a stockade, and nothing else. The hut gave a little privacy, the compound a little freedom of movement, but that was all. Watching spearmen made escape, even if they could have climbed the pointed logs, impossible.

A native came up to the stockade and thrust a basket of fruit and vegetables through a gap between the stakes. He followed it with a gourd of water, watched Malchin pick them up, then walked off.

"They're feeding us, anyway," called Malchin to Carter. "Fruit and vegetables again, as usual." He bit into one of the fruits. "Wonder

when we're going to get any meat?"

"I wonder why they took us prisoner?" Carter looked at the basket of fruit and shook his head. "I'm not hungry."

"Better keep your strength up," said Malchin, and bit into another fruit. "Perhaps they want to keep us in their own temple," he suggested. "Or maybe they want to test us—you know, see if we can escape." He bared his teeth. "If ever I get my hands on a projector I'll incinerate this village to the last monkey. I'll . . ." He broke off, staring at his companion. "What's the matter?"

"Look!" Carter pointed towards a similar compound to their own. It lay a few yards away and Malchin hadn't paid it much attention. Now, seeing the expression on his companion's face, he stared towards it.

It contained a few natives, or rather a few humanoids similar to the natives. Staring at them Malchin could see minor differences, a darker tint to the skin and a different pattern of scars. Some of the villagers had entered the

compound and were busy selecting a few of the inhabitants. They were quite methodical and, despite their primitiveness, or because of it, there was no possible doubt as to what they were doing, and why they were doing it. Malchin gulped and felt suddenly ill.

"Filed teeth," whimpered Carter. "The natives have filed teeth and carry weapons, and yet you said that there are no animals on this planet." His fingers dug into the big man's arm. "Why do they file their teeth, Malchin? Why do they carry weapons?"

"Butchery," said Malchin sickly. "The villagers are treating those other monkeys as though they were animals,"

"Yes." Carter's face glistened with the sweat of his fear. "And they're cooped up in a pen like this one." He began to giggle. "Ever kept pigs, Malchin? Or chickens? Or rabbits?"

He didn't have to elaborate. The picture was plain, and Malchin felt his stomach churn as he thought about it. They were big, at least three times the size of the natives, and there were two of them. Perhaps the natives hoped for an increase, or perhaps they merely wanted to fatten them up. Either way made no difference. The native's point of view was very simple and quite elementary.

Not gods.

Food.



Whether it's called Big Business,
Educating the Natives or Empire
Building, exploitation is
still exploitation—

Exploiter's End

by JAMES CAUSEY

WE TIME-STUDIED THE Term. It moved with a pliant, liquid grace, its four arms flickering over the instrument panel, installing studs, tightening screws, its antennæ glowing with the lambent yellow that denoted an agony of effort.

"See?" Harvey's freckled face was smug. "He rates an easy hundred and ten. Whoever took that first study——"

"I took it," I said, squinting at the stop watch.

You could hear him bite his lip. After only two weeks on the job, on a strange planet ninety light-years from home, you don't tell your boss he's cockeyed.

The Term hurried. Its faceted termite eyes were expressionless diamonds, but

the antennæ gleamed a desperate saffron. *If bugs could sweat*, I thought wryly. Now the quartz panel installation. Those four arms moved in a blinding frenzy.

But the stop watch was faster. The second hand caught up with the Term. It passed him. Rating: seventy-four per cent.

I tucked the clipboard under my arm, squeezed through the airlock, and down the ramp. Harvey followed sullenly. The conveyor groaned on, bringing up the next unit, a sleek little cruiser. The Term seized a fifty-pound air wrench, fled up the ramp to the airlock.

"A dozen feet back to the operation," I pointed out. "After the next job he'll have

to return forty feet. Then sixty. He's in the hole."

Harvey looked at his shoes. John Barry, the trim superintendent, came puffing down the line, his jowled face anxious about direct labour cost, the way every good super should be. "Anything wrong, Jake?"

"He can't cut it," I said.

Barry frowned up through the airlock at the Term. Those antennæ now shone the soft sad purple of despair.

We walked past the body jigs. The air was a haze of blue smoke, punctuated with yellow splashes of flame from the electronic welding guns. Terms scuttled like gigantic spiders over the great silver hulls, their antennæ glowing in a pattern of swift bright harmony, right on standard, good cost. Harvey's face was rapt as he watched them. I said harshly:

"Give me your third Production Axiom."

Harvey's shoulders squared. He said stiffly: "Beauty is functional. The quintessence

of grace is the clean, soaring beauty of a spaceship's hull——"

"Extrapolate, Harvey."

His lips were tight. "What I see is ugly. Terms must be taught individuality. What I see is a fascinating, deadly beauty—deadly because it's useless. We must sublimate it, grind it down, hammer it out into a useful pattern. Waste motion is a sin . . ."

"Excellent."

We turned into the administration lift, leaving the iron roar behind us, and on the way up Harvey didn't say a word. I listened for the tinkle of shattering ideals, and said, patiently: "You're here to build spaceships. To build them better and cheaper than Consolidated or Solar. Hell, we've even set up a village for the Terms! Electricity, plumbing, luxuries they wouldn't normally enjoy for the next million years——"

"Will they fire him?" Harvey's voice was flat.

My temper was shredding. "Four-day layoff. His third

this month. Terms kick in most of their salary for village maintenance. They can't afford a part-time producer."

I could see that Term read out of the gang, leaving the company village, stoically, while his fellows played a wailing dirge of colour on their antennæ. The farewell song. I could see him trudging over the windswept peak of Cobalt Mountain, staring down at his native village, and shaking with the impact of the *Stammverstand*, the tribe-mind, the ache and the longing. A wheel, shaken out of orbit. The lonely cog, searching for its lost slot. I could see that Term returning to his tribe. And how they'd tear him to pieces because he was a thing apart, now, an alien.

We walked down the grey corridor, past Psych, past the conference hall, to the silver door marked *Methods and Standards*. Harvey's blue eyes were remote, stubborn. I clapped him paternally on the shoulder. "Anyone can call one wrong, lad. Forget it."

Harvey slumped down at a computer, and I walked into my private office and shut the door. Harvey's personnel dossier was in my desk. I.Q. 178, fair. Stability quotient two point eight, very bad. Adaptability rating point seven, borderline. Those idiots in Psych! Couldn't they indoc-trinate a new man properly?

I waited.

In a moment Harvey came in without knocking and said: "Mr. Eagan, I want to quit."

I took my time lighting a cigar, not raising my head.

His defiant, pleading look.

I blew smoke rings at the visicom and finally said: "Since you were sixteen, you've dreamed of this. Elimination tests, the weeding out, ten thousand other smart, hungry kids fighting you for this job." I tasted the words. "When your contract's up you can write your own ticket anywhere in the system."

He blurted: "I came here full of ideas about the wonderful work Amalgamated was doing to advance backward

civilizations. Sure, the Terms have a union. They're paid at standard galactic rates for spacecraft assembly. But you make them live in that village. It costs to run that village. You give it to them with one hand and take it back with the other. All the time you're holding out the promise of racial advancement, individuality; some day the Terms will reach the stars. Nuts!"

"That's Guild propaganda," I said softly.

"The Guild is just a bogey you created to keep the Intersolar Spacecrafters' Union in line. There's a Venusport liner due in next week. When it leaves I'll be on it!"

I played Dutch Uncle. I told him he wasn't used to Terminorb's one-and-a-half gravs, that this was just a hangover from the three to five oxygen ratio he wasn't used to. But he said no. Finally, I shrugged, scribbled something on an AVO and handed it to him. "All right, Harvey," I said mildly. "Take

this down to Carmody, in Psych. He'll give you a clearance."

Harvey's face went white. "Since when do you go to Psych for a clearance?"

I pressed a stud under the desk and two Analysts came in. I told them what to do and Harvey screamed; he fought and bit and clawed, he mouthed unutterable things about what we were doing to the Terms until I chopped him mercifully behind the ear.

"Poor devil," panted one of the Analysts. "Obviously insufficient indoctrination, sir. Would you mind if I spent an hour in Psych for re-orientation? He—he upset me."

My eyes stung with pride. Sam had loyalty plus. "Sure thing, Sam. You'd better go, too, Barney. He said some pretty ugly things."

They dragged Harvey out and I went over to the visicom, punched a button. I was trembling with an icy rage as Carmody's lean hawk face swam into view. "Hello, Jake,"

he said languidly. "How's Cost?"

I told him curtly about Harvey. "Another weak sister," I rasped. "Can't you screen them any more? Didn't you note his stability index? I'm going to report this to Starza, Don."

"Relax," Darmody smiled. "Those things happen, Jake. We'll do a few gentle things with scalpel and narcosynthesis, and he'll be back in a week, real eager, the perfect cost analyst."

I'd never liked Carmody. He was so smug; he didn't realise the *sacredness* of his position. I said, coldly: "Put Miss Davis on."

Carmody's grin was knowing. The screen flickered, and Fern's face came into focus. Her moist red lips parted, and I shivered, looking at her, even on a visicom screen. The shining glory of her hair, those cool green eyes. Three months hadn't made a difference.

"How was little old Earth?" I said awkwardly.

"Wonderful!" She was radiant. "I'll see you for lunch."

"To-day's grievance day. Dinner?"

"I promised Don," she said demurely.

I swallowed hard. "How about the Term festival tomorrow night?"

"Well, Don sort of asked——"

I tried to laugh it off and Fern said she'd see me later and the screen went blank and I sat there shaking.

The screen flickered again. Starza's great moon face smiled at me and said, sweetly: "We're ready to start grieving."

I picked up the time studies that were death sentences for two Terms, and went down the hall to ulcer gulch, the conference room.

Lure a termite away from his tribe. Promise him the stars. Make him bust his thorax on an assembly line. He makes a wonderful worker, with reflexes twice as fast as a human's, but he still isn't an individual. Even when putting

a spaceship together, he's still part of the tribe, part of a glowing symphony of colour and motion. That's bad for production. Accent on individuality, that was the keynote. The Terms and their union representatives could argue a grievance right to the letter of the contract, but when it came to production standards we had them. Terminorb IV was ninety light-years from the system, and the Terms couldn't afford a home office time and motion analyst. It wasn't worth it.

Los Tichnat was committee-man at large for the Term local. He sat regally at the head of the conference table, seven gleaming chitinous feet of him, with his softly pulsating antennæ and faceted eyes, and said in a clicking, humourless voice: "The first item is a second-stage grievance. Brother Nadkek, in final assembly, was laid off for one day. Reason: he missed an operation. The grievance, of course, is a mere formality. You will deny it."

Dave Starza winked at me from behind horn-rimmed glasses. He sat like some great bland Buddha, Director of Industrial Relations, genius in outer psychology, ruthless soft-spoken, anticipator of alien trends. He said in that beautiful velvet voice: "Ordinarily, yes. In this case Nadkek wished to ask his foreman about omitting a welding phase of the operation. While the suggestion was declined, Nadkek showed unmistakable initiative." Starza stressed the word. "We appreciate his interest in the job. He will receive pay for the lost day."

Around the table, antennæ flashed amazed colours. A precedent had been set. Interest in the job transcended even the Contract.

"Management *sustains* the grievance?" Tichnat droned incredulously.

"Of course," Starza said.

Nadkek left the conference room, his antennæ a puzzled mauve.

"Next," Starza said pontifically.

The next grievance was simply that a foreman had spoken harshly to a Term. The Term resented it. In his tribe he had been a fighter, prime guardian of the Queen-Mother. Fighters could not be reprimanded as could spinners or workers.

Starza and Tichnat split hairs while I dozed and thought about Fern.

Starza finally promised to reprimand the foreman. It was lovely, the way he thumped on the table, aflame with righteousness, his voice golden thunder, the martyr, hurt by Tichnat's unfairness, yet so eager to compromise, to be fair. The next grievance was work standards. Starza looked at me. This one mattered. This was cost.

I pulled out my study proofs, said: "Radnor, in final assembly. Consistently in the hole. Rating, seventy-four per cent.—"

"The operation was too tight, Jake. Admit it!"

The thought uncoiled darkly, thundering and reverberating in the horrified caverns of my brain.

A thoughtcaster. So the Guild had thoughtcasters now. The Guild had finally come.

I sat in the dank silence, shaking. A drop of ice crawled slowly down my temple. I stared around the conference table at Starza's frown, at those Term faces, the great faceted eyes.

"We gave this worker every chance," I said, licking my lips. "We put him on another operation. He still couldn't cut it. Even though we've got production to meet, we still give as many chances——"

The thought slashed. It grew into a soundless roar.

"Stop it, Jake! Tell them how Amalgamated, under the cloak of liberation, is strangling the Terms with an alien culture. Tell them what a mockery their contract really is! Tell them about that Term you condemned this morning!"

I fought it. Feeling the blood run from my lip, I

fought it. I'd seen strong men driven insane by a thought-caster within seconds. My stability index was six point three. Damned high. I fought it. I got to my feet. The room reeled. Those damned Term faces. The shining antennæ. I stumbled towards the door. The thought became a whiplash of molten fury.

"Uphold that grievance, Jake! Tell them the truth. Admit the standard was impossible to meet——"

I slammed the door. The voice stopped.

My skull was a shattered flywheel, a sunburst of agony. I was retching. I stumbled down the corridor to Psych. Fern was there. I was screaming at her. The Guild was here. They had thoughtcasters. My brain was melting. Fern was white-faced. She had a hypo. I didn't feel it. The last thing I saw was the glimmer of tears in her green eyes.

". . . the neuron flow." Starza's voice. "No two alike.

Like fingerprints. What a pity they can't refine the transmittal waves."

I tried to open my eyes.

"The Guild atomized Solar's plant on Proycon," Carmody's voice said quietly. "It's just a question of time, Dave."

"No," Starza said thoughtfully. "Proycon was a sweatshop. I think maybe they're hinting that our production standards are a trifle rough. Look, his eyelids fluttered. Bet you he takes refuge in amnesia."

"You lose." My voice was an iron groan.

We were in Starza's office. Carmody peered at me with a clinical eye. "I took the liberty of narcosynthesis while you were out, Jake. You told us all about it. How do you feel?"

I told them how I felt, in spades.

"I want my vacation now," I said. "I've accrued seven months. I'm going to Venus," I said.

"Now, now," Starza said. "Mustn't desert the sinking

ship, Jake." I shut my eyes. His voice was soothing oil. "Jake, the Guild, as a whole, doesn't know of this plant. Guild agents are free-lancers, in the full sense of the word. They exercise their own initiative, and only report to Guild HQ when the job is done."

"Then," Carmody said, "if we can find out who——"

"Precisely." Starza's eyes were veiled. "Incidentally, Don, you've been gone the last four days. Why?"

Carmody regarded him steadily. "Recruiting. You knew that."

"Yet you brought back only a dozen Terms."

Carmody drew a slow deep breath. "Word's gotten around, Dave. The tribes have finally forgotten their petty wars and united against a common enemy. Us! Any Term that exhibits undesirable traits of individuality is now destroyed. I think a dozen was a good haul."

"You had the whole planet."

Carmody's grin was diamond hard. "You think may-

be I spent a few hours under a Guild mind-control? Is that it?"

Starza said: "On your way out, send Los Tichnat in."

Carmody flushed. "Tichnat's the one and you know it! But if he's not—if you haven't run down the spy by tomorrow—you can accept my resignation. I saw what they left of Proyoncon."

The door slammed behind him. Starza smiled at me. "What do you think, Jake?"

"Tichnat. The second I got out of there, the thought-caster stopped."

"Doesn't mean a thing. They can beam through solid rock. Hundred-foot radius."

"No exploitation," I mused.

"Fanatics," Starza said. "They'd impede the progress of man. Sacrifice man's rightful place in the cosmos for the sake of—crawling things! We'll fight them, Jake!"

Tichnat entered. He stood stiffly before Starza's desk, his antennæ a cheerful emerald.

Starza said, carefully:

"What do you know about the Guild?"

"Impractical visionaries," Tichnat clicked. "Lovers of statis, well-meaning fools. They approached me yesterday."

A vein throbbed purple in Starza's forehead. Yet he kept his voice soft. "And you didn't report it?"

"And precipitate a crisis?" Tichnat sounded amused. "I was asked if my people were being persecuted. Had I answered in the affirmative there might have been repercussions, perhaps a sequel to Proycon. Oh, yes, we know of Proycon. Your foremen are sometimes indiscreet."

"Who was the agent?" Starza breathed.

"Should I tell you, and disrupt the status quo? You would destroy the agent. In retaliation, the Guild might destroy this plant."

"Impossible! Guild agents have no such authority——"

"A chance I cannot afford to take." Tichnat was adamant.

"Amalgamated," Starza prodded, "offers a standing reward of one hundred thousand solar credits for apprehension of any Guild agent. Your village could use those credits. You could equip an atomic lab. You could maintain your own research staff——"

"Stop it." The antennæ throbbed brilliantly.

"We are your friends, Tichnat."

"Symbiosis, I believe is the word," Tichnat clicked dryly. "You need us. We need your science. We need your terrifying concept of individuality. We need to lose our old ways. The dance of harvest time. The Queen-Mother. One by one the rituals drop away. The old life, the good tribal life, is dying. You sift out us misfits who chafe at tribal oneness, you offer us the planets!"

The antennæ flashed an angry scarlet. "You think to keep us chained a millennium. A hundred years will suffice. We will leave you. We exiles

you have made, we who would be destroyed if we dared return to the tribe, we shall rule this world! You aliens drive a hard bargain, but the dream is worth it!"

Prometheus, in a bug's body. The shining strength, and the dark terrible pride.

"It is no dream," Starza said gently. "But perhaps you go about achieving it the wrong way. You still refuse to divulge the spy?"

"I am sorry. Good day."

Starza brooded after him.

"He's a fool. But he's grasping mankind's concepts, Jake. I'd give my right eye for a good semanticist! Basic English does it. *Self*, *want*, *mine*, selfish ego-words, the cornerstones of grasping humanity. Sure, we'll raise hell with their æsthetic sense, but in the end they'll thank us."

I sat, worrying about a secret fanatic somewhere in the plant who, in the holy interests of Mars-for-the-Martians, Terminorb-for-the-Terms, might soon plant an atomic warhead in our body

shop. I finally said: "What are we going to-do?"

"Do?" Starza chuckled. "Why, slacken line speeds, lower production standards, fifty per cent. at least. By tomorrow we'll be down to forty jobs an hour. They want loose standards; we'll give it to them."

"But my *cost*?"

"Obscenity your cost. Look, Jake, no matter how you set an operation up, the Terms manage to work, in some glittering little ritual. They *have* to create beauty. Their æsthetic sense must be fed. They can't adjust to quick change. Supposing you cut line speeds by ten per cent. They adjust, but it almost kills them. Then drop thirty per cent. Their ritual loses timing, becomes discordant. What happens?"

I blinked. "They go mad."

"And our little Guild saboteur will be guilty of a few Term deaths. He'll have violated a basic Guild tenet. He'll go home with his tail between his legs. Catch?"

I caught.

By mid afternoon we had the conveyor speeds down thirty per cent. The red line on my cost chart soared precariously. The entire production line slowed to a crawl. We waited.

At five o'clock it happened. Three Terms in the body shop went mad. It started a chain reaction throughout the trim line. Six more Terms ran amuck and had to be destroyed. Final assembly became a shambles. Starza called me on the visicom, delighted. "Our Guild agent played right into our hands, Jake. In forcing a production slump he's harming the workers. His next move will probably be a bluff."

I wasn't so sure.

That evening the executive dining room was choked with a tight, gnawing tension. Department heads spoke in hushed whispers, eyes darting. The man across the table could be a mindless-controlled, a Guild pawn. Smile at him politely and keep your mouth

shut. I ordered *thar*, a Terminorb arthropod that was usually more delicious than Venusian lobster, but tonight it tasted like broiled leather. It was like eating in a morgue.

I saw Carmody, at the next table. I nodded coolly to him and he hitched his chair over and said: "By the way, Jake, I'm sorry about Harvey. He's going back to Earth next week."

"Why?"

"His stability index was too low," Carmody said smoothly. "Sure, we could have given him the works, but you didn't want a robot."

I said, deliberately: "I needed that boy, Don."

Carmody got up, his smile infinitely contemptuous. "We don't all have your stability index, Jake."

I stared after him, and the thought suddenly struck me that not once had I considered quitting, ever. Somehow, the thought disturbed me.

Abruptly the public address speaker boomed.

"Attention," Starza's voice

crackled. "To the Guild agent, wherever he may be. Today you murdered thirty-seven Terms. Is this your altruism? Is this your vaunted justice?" He went on, his voice like organ music, sweeping away all doubt, making you proud and glad to be a part of Amalgamated, part of Production, when quite suddenly his voice choked off. Simultaneously another voice ripped through the hall. A cold ironic whisper, lashing at the mind.

"Altruism, yes. But not as you conceive it. Today you passed your own judgment. You have twenty-four hours to evacuate before this Plant is destroyed. The verdict is final."

The dining hall echoed with moans. Hands leaned to agonised temples. The thought-caster again, on a wide-band frequency. Through the pain I was conscious of Starza's voice. The Guild was trying to bluff us. We wouldn't let them. I stumbled out of the hall, my teeth chattering, took

the lift down to the first level, and got outside, to walk free in the park.

Here was Eden. Giant conifers and ferns wove a cool green pattern of delight, and the laughter of the crystal fountains soothed. Terms had fashioned this garden, had created a poem in living green, a quiet fugue of *oneness*, each leaf blending exquisitely with the next, the unity, the perfect whole. For one weak moment I let the pattern seep insidiously into me, and then, ashamed, focused my eyes on that jarring splash of white in the centre of the garden. The ten-foot model of the Amalgamated X-3M, squat with power, lifting on her stern jets. A symbol of Amalgamated's strength, the indomitable spirit of mankind, beauty born of pure utility. Oddly, a half-remembered poem of the Ancients flitted through my brain:

*Dirty British Coaster with
her salt-caked smokestack,
Butting through the Channel
on the mad March days—*

That was man.

On an infinity of planets he had met resistance, through force, through guile—even through beauty. And he had conquered. I drew a slow, deep breath and sat on one of the benches, staring up at the gigantic horseshoe of the factory, hearing the muted hum of the atomics. Twenty-four hours.

I tried to run through my axioms, and I was suddenly terrified. I couldn't remember them! That damned thoughtcaster. Twice in one day. Perhaps there was some gradual neural disintegration. My head hurt terribly. Tomorrow I'd go to Psych for a check up. I thought about that marble villa in Venusport, and about my bank account. Not enough. Another year, just one more year, and I could retire, at thirty-four. I thought about the Venusian twilights, and the turquoise mists off the Deeps, and wondered dully if I'd ever see Venus or the Earth again.

I saw Fern, walking among

the conifers, her face a pale mask of strain. "You heard it, Jake?"

I nodded.

We sat in the aquamarine twilight, and Fern was shivering, and I put my arm around her.

"Looks like altruism is a relative thing," I said. "What *do* they want?"

"Uncontaminated Terms," she said bitterly. "No science, no stars, no wars and no progress. A big beautiful planet-mind, the Term mind, forever static, forever dead."

"It's a bluff," I said. "Our little fanatic's stalling for time, hoping to stampede us while he finds another way."

"For example?"

"Why do you think we insist on basic English for all Terms? Supposing a foreman should start jabbering Terminese during an operation. The Terms would revert, we'd have a line shutdown. They can't adjust—say!" A random thought was nibbling at my brain. "Where was Carmody this morning? Just before I reeled in?"

Her fine brows knitted. "Why, he went—oh, Jake, surely you don't think——?"

"Went where?"

"Down the hall. Towards Personnel."

"Towards the conference hall, you mean. He never even examined Harvey!"

"It wasn't necessary," she said uncomfortably. "Don just wanted to verify his stability index."

"Sure! So he stood outside the conference hall and put a whammy on me——"

Fern was smiling. I scowled. "It fits. It has to be him."

"Or Tichnat," she said. "Or Starza. Or me."

I stared at her. "You'd do." My voice shook. "You were gone three months. They could have got to you."

Her rich, warm laughter sifted through the twilight, and I wanted to hit her. "They did," she gurgled, "but I've decided to relent, Jake. I'll spare the plant on one condition—that you take me to the Term festival tomorrow night."

I grunted. "Carmody working overtime, I suppose?"

"If the plant's still standing."

I changed the subject.

Two hours later Starza called a council of war.

The conference room was crammed with quivering executives. Starza carefully let the tension build to a shrill crescendo before he said:

"One of you gentlemen is a Guild mindless-controlled."

Ragged silence. Starza's smile was very faint.

"You gave us an ultimatum. But destroying this plant is an admission of failure you're not willing to make—yet. You'll try another tack. You're just beginning to discover that this environment we've created for the Terms is superior to the primitive jungle. Tichnat!"

Tichnat stepped forward. His antennæ were a proud, brilliant gold.

"Do you want a shutdown?" Starza asked softly.

"Are we fools?" Tichnat clicked. "To lose what we've

gained? To return to our tribe? To be destroyed?"

Starza's calm gaze caressed each face, probing. "You see? Stalemate. Whoever you are, *you're bluffing*. Tomorrow our conveyor speeds return to normal. You'll do nothing. You may try to agitate the Terms, but they're satisfied——"

One of the superintendents cleared his throat. "Look," he said unsteadily, "sometimes you can't afford to call a bluff."

Starza said, pleasantly: "Any resignations will be accepted right now. You can wait safely in the Term village until next week's freighter arrives. No repercussions, I promise."

The lie was blatant. Carmody stood by the door, his smile strained. It was all too obvious what would happen to any resignees.

"None?" Starza's brows rose. "I'm proud of you. That's it, gentlemen."

The next day was a frenetic nightmare. My cost dropped,

but it didn't matter. That was one day when the best company man became a clock-watcher. Line foremen, department heads, cracked under the strain, and were summarily removed to Psych. Carmody and staff worked overtime.

I toiled feverishly over operation schedules, the crazily fluctuating cost charts. My headache was gone, but I still couldn't remember my axioms! I felt guilty over not going to Psych, but there just wasn't the time.

Hell, *I'd* never needed indoctrination. I was an Amalgamated man through and through. Finally, I grabbed an engineering manual, leafed angrily through it—and sat there, empty and shaking.

I'd gone insane.

The words were gibberish. Oh, I could read them all right, but they didn't make *sense*. What a filthy trick. Semantic block, Starza would call it. I kept staring at the meaningless words, conscious

of a tearing sense of loss. And I wanted to cry.

Six o'clock was zero hour.

Six o'clock came, and the factory held its collective breath while nothing happened.

At six thirty Starza made a long speech over the public address. About the selfless spirit of man, helping the Terms reach the stars, about how we would never admit defeat, and about how, after tonight, the Term festival would be discontinued. The Terms had adopted mankind's culture; they had no further need of their effete native customs.

At seven, Fern and I were walking past Administration towards the lighted square-mile enclosure of the Term village. Fern had never seen a festival.

"A throwback," I said, "to their old tribal days. Their harvest, when they pay tribute to the Queen-Mother and pray for good crops and work well done. It's their yearly substitute for *stammverstand*.

Back in the native villages, whenever a Term's in trouble, he goes to the council hut and the others join him in a silent, group telepathy. But we've just about weaned them, angel! They'll be individuals soon."

We walked down the deserted row of Term huts, past the council hall, to the great stone amphitheatre, and sat with the other execs. Fern was very gay and cheerful, but I kept thinking about my axioms, trying to bring them back to life. I felt dead, all dead inside.

Starza came up, frowning, and I congratulated him.

"It's too pat, Jake, it worries me. Where's Carmody?"

"Setting up those semantic reaction tests you gave him," Fern said.

"But I never gave him——"

Abruptly the lights snuffed out. At one end of the arena loomed a twelve-foot statue of a bloated Term, limned in a soft pale glow. The Queen-Mother.

The hush. Then the radiance.

Slowly the Terms filed into the arena, rank upon rank of living flame. First the fighters, their antennæ shining crimson and splendid against the tall night. Then the twin glows of blue that denoted the spinners, the weavers. The golden blaze of the harvesters. The lambent colours crept through the air like a mood, like a dream, and deepened into a shimmering cataract of rainbow fire, a pæan of light and glory that whirled and spun in a joyous rhythm as old as the race itself.

Then—chaos.

A blinding flare cascaded from the six-foot antennæ of the statue. The radiance grew, brighter than an atomic flare, more terrible than the sun. The Terms stood frozen. Beside me, Starza swore.

This wasn't in the script.

That colossal voice.

Ear-snapping clicks, and liquid vowels. Terminese. The forbidden tongue. The voice blared. I caught most of it.

"Children, you have sinned. You are defiled with the taint of

alien monsters. You have failed the Queen-Mother. Return, my children, return to your tribes. Return to the tabernacle of unity, the one-in-all, the Queen-Mother! For in death there is life, and there is joy in immolation. Return!"

Lastly, the climax. That last shattering hunk of propaganda that would have been so tritely amusing if it hadn't been so terrifying.

"You have nothing to lose but your chains."

The giant antennæ faded to a liquid silver. The silver of hope, of forgiveness.

For a moment I was blind. I felt Fern trembling against me. The execs were chattering like frightened sheep. Then I could see. I saw Starza. He was moving down the aisle, cursing in a tight dull monotone.

I followed him down into the arena. The Terms stood shrivelled, mute. Starza was fumbling at the base of the statue, and he said, in a thick horrible voice: "Look." The loudspeaker. The coiled wiring.

The Terms stirred.

Starza leaped to the lap of the statue. He bawled: "Listen! This is sacrilege! You have been victims of a hoax——"

Not listening, they filed in silent groups out of the arena. Their antennæ were the colour of ashes. Starza jumped down. He pounded after them. He was shouting at Los Tichnat.

"I know," Tichnat droned. He kept walking. "You are right. It does not matter that you are right. The Queen-Mother called."

"Listen," Starza mouthed. "It was a fraud, a trick. You can't——"

"We must." Tichnat paused. For a long moment the great faceted eyes stared sombrely. "It was a splendid dream, the thing you offered us. But this is the final reality. And yours is but a dream."

He tramped stolidly on, after the others. The council hall door closed.

Starza clawed at the door. It opened. He was too late. They sat silently around the great table, the faceted eyes

dead, the antennæ corruscating indigo, now green, now rose. Communion. The meshing of minds. Starza shouted at them. Stillness.

Starza looked blindly at me. He was shaking. "Carmody," he said. "Carmody knows the Term mind. He can do something. Come on," he said.

We found Carmody in his quarters, methodically packing. His eyebrows rose as we burst in. "Did you gentlemen ever try knocking?"

Starza just looked at him. Carmody drew a long breath. "You'll find my resignation on your desk, Dave."

"Ah?" Starza's voice was very soft.

"It's only a question of time," Carmody said. "Call it the rat deserting the ship if you like, but I'm through."

Starza was smiling, a fat man's smile. "So you really think you can pull it off," he whispered.

Carmody shrugged, and Starza calmly took out a sonic pistol and shot him in the belly.

A sonic blast hæmorrhages. It rends the capillaries, ploughs the flesh into a flaccid collection of shattered nerve fibres and ruined arteries. It's a rotten way to die.

Starza watched Carmody thrash himself to death on the floor. I turned away.

"For the record, Jake, he made a full confession. We both heard him."

"Just for the record," I said.

"It had to be him," Starza said. "That thoughtcaster blast yesterday morning made reference to your study on the Term. Only Harvey and Carmody knew about that. It couldn't have been Harvey. He cut his throat this morning.

"I've decided," Starza said. "This is a Type L planet, after all. The natives are chronically unstable. Hostile, in fact. Pursuant to Solar Regulation 3, we have the right to enforce martial law. It should be six months before an investigation. Meanwhile——"

"We'll get production," I said.

"We'll get production." He wiped his forehead, relaxed. "I'll send in a full report tonight. Better turn in, Jake," he said, kindly. "I'll need you in the morning."

I turned in.

You lie awake, staring into the blackness. It gnaws.

My head throbbed. I should have felt a triumphant relief, but I could not remember my axioms, and I felt a sick, dull hate for the thing the Guild spy, Carmody, had done to me. What happens when you strip a man of everything he believes in?

He remembers other things.

Those memories came trooping back like ghosts and I fought them, sweating, but they came. Once upon a time, there was a starry-eyed young engineer who started out to set the galaxy on fire. But he got squeamish, somewhere along the way. So Carmody operated on him. Carmody did things to his brain, made a good production man out of him.

I remembered now.

That time I had argued with Starza about standards, nine years ago. And I had resigned. And Starza sent me to Psych.

Good old Carmody.

There never would be a white marble villa on Venus. It was a harmless dream, a substitute for what I had lost. But it didn't matter! Those superimposed patterns had been removed, that thoughtcaster had crippled my thinking, but, by Heaven, I was still an Amalgamated man! They couldn't take that away.

But Starza had been wrong about Carmody.

Nothing definite. But when you dedicate your life into extrapolating curves, frozen chunks of time and motion, into the thunder of jets lifting Amalgamated ships from Terminorb, your mind becomes a very efficient analogue computer, if you know how to use it. I used it now. I fed little things, facts, variables, into that computer, and it told me three times. Probability: sixty per cent. at least.

I got up, dressed stiffly. I was trembling. I could still serve, after all.

I took the lift up to Administration, and walked down that long grey corridor on leaden feet towards the illuminated rectangle of Starza's office.

I opened the door.

"Hello, darling," Fern said.

She was unhurriedly burning Starza's report. Starza sat mutely in his chair, head tilted back at an impossible angle, staring at nothing.

"It had to be you." I had never felt so tired. "You would have destroyed the plant, wouldn't you? Only I showed you another way. Make the Terms revert. And you had that hypo all ready when I reeled into Psych." I moved towards her carefully. "You're so damned altruistic. A Guild mindless-controlled," I said.

Fern's smile was compassionate. She methodically

ground the ashes to powder, lifted that calm green gaze.

"Stupid words to frighten children, Jake. Yes, they kidnapped me. I never reached Earth, three months ago. I was indoctrinated—oh, they didn't have far to go. *Each race to its own fulfilment.*" Her eyes were shining. "Look out the window."

Numbly, I moved past her. I stared. In the distant blackness, a column of living flame flickered up the slope of Cobalt Mountain. Ice-green, ruby, silver and blue. The Terms were leaving.

"They're not ready for individuality yet," Fern breathed. "In a million years, perhaps. Not now. They're going home."

"To die."

"The race will live. Individuality isn't the penultimate, darling. You'll find out." I moved towards her. "You've got a very tough mind, Jake. You'll make a wonderful Guild agent——"

I got both hands on her throat.

Fern moved. Her right arm was a snake striking, and a steel strength lifted me, turning, against one and a half gravities, and the floor wavered up to hit me in the face. Something broke. I tasted blood.

Through the agony, I moved. I crawled towards her.

"They gave me six weeks of hand combat under two gravs," she said. "Soon you'll be one of us, Jake. One of the Guild!"

I stared up at her in a dull horror. I kept crawling.

"We'll heal you," Fern said. "We'll give you back the dream. We may even work together! Maybe I'll fall in love with you again, who knows?" Her eyes were brimming. She took out a sonic pistol. "It's all right, darling. I'll adjust it for knockout. In three hours we'll be on a Guild flier. Please, darling," she said, and I kept crawling. And Fern's smile was a benediction as she pulled the trigger.

It was a strange harvest, the gathering of the best, and yet, in a way, those who failed also gained

HARVEST

by

JOHN ARKWRIGHT

YOUNG CLIFFORD WAS losing patience. "Hurry, please," he begged.

Smithson walked more quickly. He passed a tattered clump of bushes, waded through knee-high grass towards the village, and then tripped over something sharp. With a cry of pain he fell and lay buried in cool green stalks. Blood trickled from his gashed ankle to stain the weeds and seep into the ground. The wound might have become serious had not Clifford intervened; he made the red stream halt and the lips of the cut close gently.

Two minutes later, only a scar remained.

"Thanks, Clifford," thought Smithson. Relieved, he sat up and fumbled cautiously till his hands were gripping the half-concealed cause of his injury. He tugged in vain, then rose, stood astride the object and wrenched. It came free with a savage tearing of shoots. It was broken and rusty, and strands of grass trailed from it; a plump pink worm, bewildered, wriggled from the disturbed soil that clung to the object's saw-toothed edge.

"Part of a binder blade,"

thought Smithson. In answer to Clifford's unspoken question, he added: "It was attached to a wheat-mowing machine."

He smiled slightly. His mind wandered back down the years to the gathering of a very different harvest . . .

Darkness, alive and whispering.

"Where am I? Where's Joan? Burroughs!"

Only a silence louder than thunder.

A wall meets him as he gropes along, a strange wall, neither rough nor smooth, neither cool nor warm to his fingers.

"Weak . . . too weak . . ." he sobs softly.

Neither a door nor windows.

"I'm cold," he whimpers.

Chill hands of air feel his nakedness, and he shivers.

"Smithson?" Neither a human voice nor a metal voice.

"Yes?"

"Soon a light must hurt you."

"Why? Why?"

"Show no fear. Many of us are around you."

"Show no fear," he repeats.

Something moves behind him.

"Remember that your fear must be thrust aside."

"O, God, please—let it be a nightmare; make it break up suddenly and I'm in my warm bed and Joan's by me, laughing and comforting me, and I'm not frightened, but stop it don't let it go on and Joan and stop it don't let it go on and on and——"

"Walk, Smithson. You will be guided."

Naked and alone in the blind man's world, he turns here and there, and pauses suddenly without speaking. He senses the nearness of something by his elbow, and reaches out slowly into the darkness; but his tensed hands pass through nothing, or almost nothing.

"Why have you halted?"

"I—I'm tired."

"Brief rest is granted."

Nothing, or almost nothing; an awareness in his outstretched fingers, warmth, and an impression of something coiling in a spiral. Then fear . . . like a madman trapped in his heart and pounding within leather walls for release. Smithson tries to snatch back his hands, but . . . up, up, past the shoulder, down the body, up, above the throat, a warmth whose twisted threads go spiralling across the lips and over the eyes——

"In the name of mercy make me wake up! You can't, you can't let it keep on . . . Joan . . . Joan . . ."

"You wished to touch us, Smithson, and you have done so; similarly, we have touched you many times in the only way possible to us. The rest is ended. Continue walking."

Smithson's feet move warily. He thinks: "Supposing this isn't a dream; supposing I'm here in the darkness . . ."

"Prepare yourself, Smithson."

Light—blazing, searing,

white with fury—glare, piercing fragile eyes and biting cruelly into them.

"No! I'm being blinded!"

Shielding his face, staggering . . .

The floor strikes him. Flinching, he squints up against the agony and sees them all around him.

But they have no shape, no arms, no legs; they are nought but occasional twining of mist, elusive, irritating flickers.

Once, when Smithson was young, the dark torrent of the winter sky roared over him; the decaying thunder clouds were things alive, talking in hollow voices before the breaking of the storm.

The terror of long-ago returns. These creatures are cathedrals about him, tall, and suffused with dusk.

"Who are you?" he whispers.

He senses, then, a peculiar transformation—wine, not blood, feeds his flesh, and a

cool dew melts the dryness from his tongue.

"We have lessened your fear, Smithson. The testing is complete. You were unconscious for most of its duration."

Memory walks slowly through the corridors of his brain, opening a door here and there.

Nothing made sound in the ship save the automatic fans, shrilling softly, blowing stale air away with twisting lips. The chronometer indicated eight o'clock, Greenwich mean time. Out here, however, there was no night or morning.

Smithson was watching Carruthers—yes, and remembering how Carruthers had climbed with Joan, through the mist, up the dead rock of the mountainside.

How could one man earn such hatred?

Smithson hated Carruthers; he hated him as only a jealous husband could hate. Carruthers was dark and

lean and had a merry laugh, and Smithson's wife admired such men. Carruthers and Joan had forgotten Smithson for part of that holiday.

"Next year . . ." decided Smithson. "Yes, another holiday there; and I'll find a way . . ."

The fans chewed and sneered.

"Cooped up!" growled Matthews. "Cooped up in this thing like animals! Why can't they design machines to——"

Paralysis gripped them, as though a great syringe had stabbed into the ship to inject numbness.

Men, chronometer, churning fans—frozen.

And something had entered the cabin, a merest hazy suggestion of solidity, a coiling flicker——

Smithson screams, crouching among them beneath the clean light. Wine fills his veins once more and his fear subsides.

He stands up, swaying. "What have you done? This—this testing you mentioned... I don't . . . Where are the others? The crew! Where are they?" Bitterness rages in him at the thought that the others may be in the ship, near the Moon, safe, while he—Smithson—is here.

"Where are they? Tell me!"

"Your reactions confirm our decision, Smithson. We have freed your former companions. For you, we came too late. You have for too long been imprisoned and poisoned—your judgment is permanently warped. There are many like you."

"What—what do you mean?"

"We can take only the finest. Many have been wasted—Newton, Einstein, others . . . We cannot watch your world unceasingly to pick out the fit—we can but pause briefly at each planet while passing from one system to another throughout this galaxy. When our numbers have grown

sufficiently we will be able to post watchers to guide each species on each planet on each system in each galaxy. Thus, the regrettable waste of the past will never be repeated."

"But what have you done to my friends?" Horror sickens him. Where are the men who felt the many sweet and sour pulses of the world, whose fingers moulded perfection, whose eyes saw the colours and the sombreness of the place that gave them birth?

"Where are they?" he repeats desperately.

"They are free, Smithson. Truth is all that they will require now, for they have been severed from the mingling of good and evil influences that hampered them before. They are beyond hurt and death."

"You brutes," he cries in misunderstanding. "Cruel, inhuman brutes."

More and more of them hover around him.

"Why are we to be considered cruel? Those men came wailing into their limited world, bound by flesh that pained them and infested their reason with its own decay. Their vision was dimmed by the filter of clumsy chemical processes through which they strove to perceive the universe. They have been freed of false emotional judgment—they are happier now."

"No! No!" he shouts. "They accepted pain; they accepted the idea of death. They loved life! They enjoyed the power they wielded over matter. Think of Benson and his poetry! Think of the way he tried to express other planets in words! What of music, painting and sculpture?"

"Matter is an ultimately unrewarding servant. Beauty is a relative concept, invented by men, for men. The only eternal beauty is truth. Tell us what the universe is—then you will realise why we have freed your companions."

Smithson laughs sourly. Are these advanced intellects still

pursuing the end of the rainbow?

"The whole question's futile!" he retorts.

"You are wrong, Smithson. The universe is a mathematical concept."

"Nonsense!"

"Such refutations typify your mental processes, Smithson. The explanation which we offer is undeniable."

"How can it be?"

"Matter consists of a balanced relationship between emissions from supposed atoms—they exist only as emissions, measured only by further emissions. Thus, matter is a series of formulæ."

"But—— No, no, these formulæ, these laws, all must relate to something—that something will always escape you!"

"Laws are absolutes, not qualities. The concept of the triangle existed before the triangle."

"You . . . you imply that matter conforms to laws, and not that laws are devised to

conform to the behaviour of matter?"

"Yes. We have travelled, ruled by reason, throughout several thousand galaxies, freeing life as we pass. We hope that soon we will discard our last traces of matter. Finally, all that is called matter will be dissolved into thought. Thought alone will exist—possibly fusing into one mind with the ability to make matter of itself and break it down at will. But that is for the remote future. We are the beginning of the process, freeing fit minds from flesh."

Smithson realises at last what has happened to his friends.

"But what of those who don't want to leave their bodies?" he asks.

"None do, till free—once free, none wish to revert. The logic becomes obvious only when one has been removed from an illogical state."

They lead him towards a wall. "See your former companions."

The wall glows, but shadows fall around it—soon the wall alone has light, and an image forms within it, upon it, bulges out, and becomes reality.

For a second, Smithson thinks that he is in a tremendous bee-hive. Millions of white-wax cells shine on all sides and rise till they are lost in darkness far above his head. In each cell, motionless amid clear liquid, connected to pipes by narrow tubes, is a loosely shaped grey thing.

Fighting against disgust and nausea, he steps nearer and peers at one of the brains. "What—what's covering them?"

"The dura mater, outermost of three sheathing layers. Artificial nourishment is fed in via the foramen magnum. In centuries to come, that need will end—they will absorb energy of various kinds. In millions of years they will learn to transform themselves into almost pure thought,

mentality with but a shadow of matter, even as we did at the peak of our planetary evolution."

Smithson feels that he is falling through an unlit night, alone and in utter silence.

"Matthews!" he screams hoarsely. "Harris! Burroughs! Benson! Carru——"

Carruthers was dark and lean and had a merry laugh, and Smithson's wife admired such men.

Smithson stands soundlessly. Gone, the hatred; gone, the jealousy. What has he to envy now? The muscles and the laughter are a little grey thing, wrinkled, pathetic . . .

"Carruthers!" he yells.

There is no answer.

"Carruthers," he sobs. "Edward Carruthers . . ." Clipped neatly from the branch of Earth to sprout in alien soil. Pity fills Smithson as malice fades. Carruthers can never laugh again. Dust, his splendid body—ripped away, his dreams.

"You must not remain here,

Smithson. Their memories are temporarily subdued—they have been cleansed and are being taught logical thinking. Your discordant emanations may adversely influence their progress."

"You—you mean I'm telepathic now?"

"The brains are completely telepathic—you are partly so. How else could we converse?"

"Can—they—read my mind?"

"We are shielding them from you as much as possible, but stray pulses may reach them."

Smithson turns, covering his eyes. He wants to say, "You're scared they'll wish to revert if they read my thoughts," but the words do not reach his tongue. Instead, he says: "You—you've done . . . that . . . to millions of people?"

"To one third of your race. The benefit is brought to all intelligent species."

Suddenly, Smithson's mind seems to congeal. He stumbles

from the shining cells, only to face another wall of them. "Put me on Earth," he pleads. "Let me go back to Joan . . ."

"Your wife was found fit to be freed."

Smithson's throat dries. A whirlpool forms in his skull. He swings about, staring at ranks upon ranks of brains.

Somewhere, Carruthers.

Somewhere, Joan.

The two of them, together at last, sharing every thought.

Viciousness boils in Smithson. He lurches forward. Into his mind comes an image of Carruthers and Joan, destined to roam like fireflies through gigantic darkness——

Smithson throws himself at the cells, intent on smashing them, plucking the foul brains from the tubes and ripping, rending, stamping——

Perspective shifts queerly. The cells disappear. The wall is normal. Light glows around him.

Slowly, like a stricken tower, Smithson topples and folds up into himself. He sits with his

back against the cool wall and tears trickle down his cheeks. His shoulders heave. He does not see the breaths and flickers that spiral before him.

"They must not be harmed, Smithson."

"And——and——those like me? Those who——aren't . . ."

"They will breed on. Evolution will continue. You have been given certain advantages. In the two years during which you and many others have been unconscious here, being tested, all major traces of your previous mechanical civilization have been removed from Earth. Your race has been granted a fresh start. Perhaps it will learn to mould itself instead of its environment. Perhaps, when we return after hundreds of millions of years, we will find that your entire race has achieved immortality and fitness."

"Two years!" He clambers up. "I—it—wait . . ."

Words die in his mouth.

Solidity is fading. Glare

dims into gloom. The spirals are lost. A blue pillar glitters before him and merges into the darkness. His thoughts thrash, weaken, relax limply and sink like men drowning in a calm night sea.

Awakening.

People, naked, jostling their way out of a great door and fleeing across green earth while the sphere which they have left sighs quietly and lifts itself beyond the mountains, beyond the clouds, beyond the sky, beyond . . .

And, for Smithson, a year of wandering from village to village where the other spheres had been. Settling down, and marriage, and——

Clifford.

Smithson looked for long minutes at the rusty binder blade. Not every fragment had been lost. Odd bits lay in various places. Even the sites of cities were detectable.

The aliens had depleted

the population; had endowed it with apparently hereditary telepathy. And future generations . . . ?

"Is this what was planned for us?" he wondered. "Or are we striding on a new road—one never glimpsed by the aliens? Perhaps we can combine the best of both—perhaps thought and flesh could work in harmony. Where will we end now that we've been given a purpose?"

"Come on, father." Gently, six-year-old Clifford made the blade twist out of his father's grasp and used it as a bait. "Try and catch it," he challenged.

"That's not fair!" thought Smithson, chuckling. The scar itself had vanished from his ankle. He grinned, rubbing the unblemished flesh.

The blade floated on, a yard above the long grass. Smithson waded after it towards the village, three miles away, where Clifford and the others were waiting for him.

An interesting article about a generally forgotten field of aviation—and the oldest

BALLOONS MAKE A COME-BACK

by KENNETH JOHNS

IT IS REMARKABLE THE WAY old ideas, inventions, ways of thought and methods of doing things come back into fashion after centuries of disuse. It might be thought that balloons are completely out-dated in this age of supersonic jet aircraft, guided missiles and artificial satellites; yet more upper atmosphere research is being performed with balloons than with all the other noisy mechanisms put together.

Only recently has the full value of lighter-than-air craft been realised, particularly in the U.S. where Skyhook plastic balloons are being mass produced, each one capable of lifting half a ton of equipment

up to the frontiers of space.

Why is there this renaissance of the balloon?

Public attention has been focused on the rocket as a research vehicle—it is certainly more spectacular and is the only method of reaching heights much over 20 miles. But it has many drawbacks. Its flight duration is short; scientists are happy if they can record ten minutes of high-altitude conditions. And there is the problem of recovering the valuable instruments and records—a rocket can dig as large a crater as a one-ton explosive charge. Telemetering results back to Earth and destruction of the stream-lining of rockets by

explosive charges as they come back through the atmosphere have been used, but they are only partially successful.

And, so far, no one has been able to ride a rocket to supervise equipment that needs manual operation.

The aeroplane is severely restricted by the maximum height it can reach, although observation time is almost unlimited; very delicate, complex equipment can be manually operated, and the problem of equipment recovery, like crew recovery, is non-existent.

Both the rocket and the aeroplane lose out against the balloon in one other vital aspect. They are both expensive, the rocket fantastically so—a single Viking firing costs £100,000.

All these considerations mean that the future of atmosphere research up to twenty miles will, for some time to come, be with the balloon. And many of the most interesting phenomena

lie below the twenty-mile mark. Cosmic rays reach their greatest intensity from the production of secondary rays around ten miles up, and the cosmic ray physicist is particularly interested in obtaining clear and prolonged records at this height. However, rockets are of use in measuring the primary cosmic rays before they begin to batter their way through the denser levels of the atmosphere.

Before the inauguration of the Skyhook programme by Americans, only small sounding balloons were available to reach the heights necessary for meteorological research, and these were capable only of carrying payloads of a few ounces. These sounding balloons, which are still in use, are manufactured of natural or artificial rubber. Unexpanded, they measure seventeen feet in diameter, but as the balloon rises, the decreasing outside pressure allows the gas to expand until the diameter reaches ninety feet. Then it bursts.

Great heights with small payloads have been reached by these sounding balloons. The absolute record for a free balloon is held by one released on 28th September, 1948, when one with a two-pound payload soared to twenty-seven miles. Their normal load is a radiosonde, combined radio and automatic units, to measure and radio back information on temperatures, pressures and humidities.

Ground observers track the balloons to measure wind directions and speeds at different heights. When the balloons burst at their maximum height, their radiosondes are parachuted safely to Earth by paper or silk parachutes.

Nowadays, radar is also used to track the balloons, and because a balloon is not a good radar reflector lightweight aluminium foil is suspended beneath them so that they show up on the radar screen with vivid clarity.

With the advent of the U.S. Navy Skyhook balloon,

upper atmosphere researchers were given their first chance of sending up heavy payloads of equipment. The first skyhooks were standardised, pear-shaped balloons seventy-two feet in diameter and 102 feet high, the size of an eleven storey house. Now, there are many different types.

They are manufactured from polythene, a plastic of incredible thinness and toughness. The material now used is only .0012 inches thick, half the thickness of a human hair. Helium is used as the lighter-than-air gas—the safety factor, due to its non-inflammability, more than makes up for its lesser lifting power when compared to hydrogen.

The Skyhook launching is performed by trained personnel able to work as easily aboard ships as on land. In fact, even allowing for the cramped conditions of a ship's deck, necessitating coiling the deflated balloon into a circle instead of laying it out flat, shipboard launching has at least one advantage. The ship

can turn at once if there is any change in wind direction.

The balloon is partially inflated and the bubble of helium allowed to draw the length of polythene material gradually upwards, under constant control of the launching crew. As the balloon peels itself off the ground the wind carries it, enabling all the items of equipment carried to become airborne one after the other.

The Skyhook is non-dilatable—that is, it does not expand with the gas inside. When the helium has completely filled the rising balloon, any excess is bled off through a hole in the bottom. A normal load carries a release timer which cuts free the load after a pre-determined time, attached to which is the open parachute with the radar reflecting foil secured to the parachute harness. Then comes the scientific load, specially designed for the particular operation on hand, and dangling below this the radiosonde and a radio beacon.

The balloon usually ascends at a rate of 800 to 1,000 feet per minute and takes about two hours to reach twenty miles.

Recovery of the instruments is the prime consideration, and usually a small aeroplane accompanies the balloon, keeping it in sight in spite of its greatly superior height, and, on some occasions, even being able to land at the point where the parachuted instruments have come down.

Normal height-measuring telescopes, both fixed and mobile, are used to follow it. In addition, radio beacons are attached to the balloon to broadcast a radio signal for cross-checking purposes.

One of the reasons for these elaborate precautions against losing the balloon, quite apart from the scientific purpose of instrument recovery, is to have concrete evidence to refute a new "Flying Saucer" story. Very many Skyhooks are not of what is considered "normal" balloon shape. They come in shapes and sizes to

suit the scientists. Instead of using the original standard Skyhook type, flights are now made with balloons designed around the instruments they must carry. Consequently, the resulting shape may be somewhat bizarre.

Cylindrical, hemispherical and conical shapes might be recognised with a little difficulty. But balloonists have found that a "natural" shape is superior for most operations. This means that the balloon takes the shape best suited to itself, and will look like anything under the sun except a balloon.

Drifting at twenty miles high, in winds up to 200 miles per hour, the Skyhook is visible to the naked eye for many miles. Aeroplanes have attempted to chase them and the pilots, not unexpectedly, have reported being unable to get close to them. The concept of a translucent plastic bag, the size of a small gasholder, travelling at 200 miles an hour without any sound and with the sun refracting bril-

liantly through it, is enough to make the most serious-minded think of "Flying Saucers."

A big advantage of the Skyhook balloon for pure weather research is that, unlike normal radiosonde balloons which burst at maximum altitude, the Skyhook reaches that altitude and can then drift for as long as the scientists wish—for hours and days if necessary. All this time it is a mine of information on what forces are at work moulding the weather. It offers a tremendous new opportunity to study conditions over vast sea masses where before little or no research was possible. Something of this work is reflected in recent protests by countries of balloons drifting over their territory armed with "spy" cameras. One balloon, released from Oppama, Japan, became caught in winds going the "wrong way," and drifted merrily over Russia, broadcasting signals on the state of the weather six miles up. Others cross the Pacific from

Japan to America. These scientific balloons, of course, have nothing in common with the propaganda balloons released by private agencies, except that they are both lighter-than-air vehicles.

To date, the largest Skyhook launched—and the largest unmanned balloon ever—had an inflated diameter of 200 feet and contained 3,200,000 cubic feet of helium. The size of a gasholder gives some idea of this volume. This "Giant Skyhook" was sent aloft on 18th May, 1954, to reach twenty-three miles with fifty pounds of equipment designed to check on cosmic ray phenomena.

Plans have even been made to send a one-ton astronomical observatory eleven miles above the Earth, using a super Skyhook to lift it. With a crew of two, it would be able to decide once and for all whether or not there is water vapour and oxygen in the air of Mars and Venus. Launched one evening in September, when Mars makes its closest

approach to Earth for fifteen years, it could drift serenely across the night sky whilst its two scientists employed telescopes and spectroscopes to analyse the reflected light from Venus, Mars and the Moon. Then, in the morning, the pressurised cabin and instruments would parachute back to Earth.

These enormous balloons, only possible through the latest scientific discoveries, with their heavy and complex loads, are a far cry from the very first balloons launched with the definite intent of meteorological research in 1892. Previous to that time, from the very first authentically recorded aerial voyage in history by Pilatre de Roziers and d'Arlandes at Paris, the accent has been on the passenger carrying attributes of lighter-than-air aircraft.

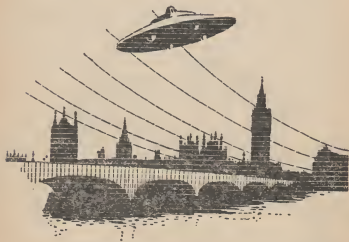
The next time the weather doesn't turn out as the prophets have foretold—it may be because a weather balloon has decided to "go the wrong way," or conditions

were impossible for a launching—whatever it may be, you can be sure that a balloon is mixed up in it somewhere.

And the future plans that balloonatics have for their friendly craft are more than astounding. Although the maximum height that a balloon can ascend is in the region of twenty-eight miles, schemes are afoot for scientists to ascend far higher than the previous balloon height

record, set up by Captains A. W. Stevens and O. A. Anderson in the *Explorer II*, on the 11th November, 1935. They reached an altitude of 13.7 miles. But the scientists ascending in the new project are not going up merely to break records—they intend to jump out and descend by parachute—all in the line of scientific research.

Most certainly, the day of the balloon is not over.



A machine which could give
you everything you wanted would be
a wonderful thing . . . wouldn't it?

WISHFUL THINKING

by
CARL MOULTON



JOHN NORRNER.

THE ROOM WAS A BOX twelve feet square, lined with tall green filing cabinets and centred by a desk. A desk lamp threw a sharp cone of brilliant light over the blotter, spilling onto the floor and illuminating the rest of the room with dim, unreal reflection. Two men sat at the desk, the smoke from their cigarettes coiling like a living thing in the close confines of the room.

"I don't like it," John Evans, thin, gaunt, nervous, dragged at his cigarette and glanced at his watch. "Thirty minutes now. You shouldn't have let him try it alone."

"Carl insisted," Sam Conway, falsely bland, sat and smoked and controlled his nerves with a lifetime of practice. He was a psychologist, a good one, and had long learned to master his emotions. John was a technician, a man who could dispense shock treatments, handle an electroencephalograph, perform electronic wizardry, and yet who was the

slave of his own glandular reactions. He tensed as sound filtered into the room.

"Relax." Sam had noticed the tension, recognised the cause, identified it and dismissed it. "One of the patients having a bad time. Forget it."

"I don't like it," John repeated. "If someone found us here they might start asking questions."

"We're covered." Sam crushed out his cigarette, hesitated, then lit another. "There's nothing in the rules to say that we shouldn't get together in our off-time. If we want to talk shop and look up some case histories, then that's our business." He chuckled. "With the staff problem what it is no one is going to jump on us for being enthusiastic about our work."

"That depends," said John drily. "We've been a little too enthusiastic. What with the misordering of components, the misuse of machines and the misappropriation of

funds we could be in real trouble."

"Not if we succeed," pointed out Sam evenly. "And we have already succeeded far enough to justify what we've done. After Carl has finished his final series of tests we can publicise what we've done."

John nodded, his logic telling him, as it always did, that his fears were unnecessary. As usual, logic yielded to pure emotion and he sat and smoked and sweated with anticipation of discovery.

Again sound filtered through into the room, distorted, almost unrecognisable, and yet, to an experienced ear, unmistakable.

"Number seven-twenty-three," said Sam quietly. "Paranoia."

"Due for shock-treatment," said John. "She's already had insulin; now she's due for near-electrocution. When that doesn't work they'll do a lobotomy and release her as cured." The way he said it

left no doubt as to his opinion of the "cure."

"Not if Carl clears up the loose ends," said Sam. He stared at his cigarette. "Not ever again if what we are working on proves itself. No more drugs, electrocution, savage surgery. No more probing and questioning and blundering. Insanity will be cured the right and only way, by the patients themselves."

"If Carl succeeds," reminded John. He glanced at his watch again and, as he did so, his sleeve rode up his arm to reveal a thin, red line. Sam reached forward, gripped the wrist and stared at the mark.

"Still there?"

"Yes." John looked at the mark. "It's going fast. Another day and it will have vanished." He drew back his arm. "That'll teach me to control my imagination." He returned to the subject foremost in his mind. "Carl shouldn't be alone. One of us should have monitored

him as we did before. Why did you let him try it by himself?"

"I had no choice." Sam shrugged, forcing himself to remain calm. "I was delayed and Carl had locked himself in by the time I arrived. You know how he is, impatient as the devil, and he wanted to test the new circuit."

"He's impatient," admitted John. "Too impatient, but he should have waited."

"That's what I told him," said Sam. "He took no notice. Said that he'd run a test and join us here."

"He's been alone for almost an hour," said John. "A test should last no more than a few minutes. Allowing for preliminaries he's still long overdue." He crushed out his cigarette and rose to his feet. "I'm going to join him."

"And if the door is locked?"

"He'll open it or we'll force it open."

They had to force it open.

They did it carefully, mindful of janitors and repair men

and the rest of the staff who might be curious as to why a laboratory door had been forced. And they didn't do it until it was obvious that Carl either didn't, or wouldn't, hear their calls and knocks. Sam produced a strip of steel, wedged it in the lock and levered back the latch. The door swung open. Sam stepped forward, switched on the lights and stared into the familiar room.

It was long, white-walled, grimly sterile and totally utilitarian. Cabinets of instruments and drugs lined the walls, hulking machines hunched over adjustable chairs and operating tables, and a complex switchboard hung against one wall. One corner of the long room was shielded by high screens above which hung a single light. Sam stepped towards the screens and rolled them aside. Behind the screens rested a chair. In the chair . . .

"God!" Sam stepped back, his face ghastly. "God!" he said again.

John didn't say anything; he was being violently ill.

Captain Mark Engles put down his book, tilted back his chair and stared up at the ceiling. He was a big, raw-boned man, his face seamed and with prominent cheekbones, his lips thin, his short hair showing touches of grey. Like his body his hands were big, the palms broad and the knuckles scarred with old wounds. He had the physical equipment of a man of violent action, but now, as he leaned back and stared at the blank expanse of the ceiling, his eyes were those of a dreamer.

It was a trick he had, this relaxing and staring into nothingness. A trait that he had encouraged and developed during many years. Its practical use was attested by his rapid promotion from rookie cop to a captain in Homicide, for, at such times he was, in imagination, a different person in different circumstances. A murderer on the run, a

killer lurking in darkness, a slayer who thought himself safe from discovery. It helped to be able to gain empathy with such a person—helped to put them where they belonged. But the trait had another, intensely personal aspect, too.

Now he was alone, bound, the walls of sweating stone, the air heavy with the stench of glowing charcoal and alive with the little, menacing sounds of boiling oil and touching metal. Feet shuffled towards him, soft, whispering as crude leather trod the reeking stone of the dungeon. They came nearer, nearer, and he tensed, straining mentally, against imaginative bonds, his heart pounding in his chest and the cold sweat of fearful anticipation oozing from his forehead. Desperately, he gritted his teeth, clenching his jaws against what was to come.

The door opened, Lieutenant Stanley entered the office, and the dream world vanished with the turning of the knob.

"What is it?" Mark straightened, one hand picking up his book, the other opening a drawer in his desk. He moved smoothly, yet not so fast as to arouse suspicion. Stanley glanced at the book, caught a glimpse of the title and looked surprised.

"Historical stuff? Didn't know you went in for that sort of reading."

"Some of it can be interesting." Mark poised the book in his hand. "Ties up with the job, too. Did you know that in the old days they had the death penalty for most everything you can think of? Killing a deer, stealing, not paying taxes, any number of crimes. And they didn't burn their murderers, either."

"No?" Stanley sat on the edge of the desk and helped himself to a cigarette from the captain's personal pack. He was thin, dressed in slouch hat and belted raincoat and looked just what he was, an underpaid, overworked detective who had long lost his illusions. He

gestured towards the book. "What did they do with them, hang them?"

"Sometimes." Mark tossed the book into the drawer, closed it, leaned back. "Mostly they used torture. Molten lead and boiling oil poured down the throat. Stretching on a rack, thumbscrews, hooks, boots which crushed the feet, and other things which crushed the skull." He shuddered at recent memory. "It makes you feel sick to think of what those poor devils must have suffered."

"Different age, different ways," said Stanley. He wasn't interested. "Maybe they just didn't look at things the way we do."

"Pain is pain, no matter what the age." Mark looked at the lieutenant. "What did you want to see me about?"

"Call just came in from the city dump," said Stanley. "Old guy who acts as watchman phoned in to report the finding of a body."

"Murder?" Mark rose from his chair, his eyes alert.

"I guess so." Stanley shrugged. "I've sent off the waggon and the photogs. Doc Lancing is riding with the meat waggon. We won't know for sure until he gets throughwithhisexamination."

"It's murder," said Mark decisively. He glared at the lieutenant. "Why didn't you tell me this immediately?"

"Does it matter?" Stanley looked genuinely surprised. "The stiff isn't going to get up and walk away."

Mark snorted and led the way from the office.

The city dump was a ten-acre stretch of rubbish half-filling the open maw of a worked-out sand pit. Trucks from the city tipped their debris into the water, mingling broken bricks, builders' rubble and factory trash with the general garbage and junk collected by the city. A small bulldozer, red and yellow, squatted in silence close to a shack made of clapboard and corrugated iron. The shack looked as if a high wind

would blow it back to the rubbish from which it had been built. A rusty stove pipe stuck up from one corner and a litter of old iron, salvaged timber, bricks and mouldy rags surrounded it. A little way from the shack, close to the edge of the stagnant water, a cluster of men and vehicles gave life to a desolate scene.

"This is it," said Stanley. He jerked open the door of the car, stepped to the ground and waited for Mark to join him. Together, they moved towards the knot of men.

There wasn't much to see. Some rubbish had been moved and a man's shoe and trousered leg stuck towards the water. Mark stared at it, glanced around to see if the photographers had recorded the scene, then gave orders for the rest of the body to be uncovered. As the uniformed police worked he singled out the watchman.

Old Joe McQuire looked as filthy as the rubbish dump which he had made his home.

His face was lined and seamed with dirt, his watering eyes reflected the stagnant water, his clothes had obviously been salvaged from the heaps of rags surrounding his hut. He wiped his mouth on the back of his hand and stared apprehensively at the captain.

"You found the body?"

"That's right." Joe scuffed one broken shoe on the dirt. "I was taking my usual walk and spotted a shoe. I went down and tried to collect it. When I found that there was a foot in it I near collapsed." He pressed one dirty hand to his chest. "I ain't as strong as I used to be and . . ."

"Skip it." Mark stared around him. "You live in the shack?"

"That's right. The city hire me as watchman and I live on the job."

"What are your duties?"

"I tell the drivers where to tip their loads and sign their papers if they have any. Mostly they haven't; it's a free tip. Then I try to keep the kids away from the water.

Then, when Lem's here, I help him out."

"Lem?"

"The driver of the bulldozer," said Stanley. "He comes down twice a week and levels off the dump. The drivers can't tip directly into the water for fear of getting bogged down."

Mark nodded. He had already grasped the picture. The old man, more scavenger than anything else, making a place for himself on the dump. His wages would be nominal, his presence enabling the city authorities to obey a local ordinance, and he probably spent more time in salvaging rubbish for his own benefit than carrying out his duties.

"So you found the body while taking your usual walk," said Mark. "Was it there yesterday?" The framing of the question was deliberate, the reaction as expected. "All right," said Mark. "Let's put it this way. Could it have been there yesterday?"

"No."

"Sure about that?"

"I'm sure." Joe rubbed the stubble on his chin. "Lem was down yesterday and levelled off that area. I'm sending the trucks over to the far side now. Then they work back until Lem can level what they dumped." He peered at Mark. "You don't think I had anything to do with it, do you?"

"Did you?"

"Hell, no! I told you, I was taking a walk and saw a shoe. I phoned in as soon as I saw something was wrong." Joe rubbed his chin again. "They were good shoes, too." He seemed more upset about the loss of the shoes than that a man had died.

"The picture's clear," said Stanley. "This old coot makes sure that the trucks dump their rubbish so that he can take his pickings. When he's searched one lot he gets Lem to turn it over so as to make a second search." He looked thoughtful. "The body could have been dumped a couple of days ago under a load of

rubbish. Or it could have been planted last night." He glared at the old man. "What happens at night? Is the place locked?"

"No." Joe looked uncomfortable. "The gate's busted. I've tried to keep it locked, but it's no good. A lot of couples come down here to smooch; sometimes there's as many as half a dozen cars, and the kids swarm all over the dump. I do my best, but I can't be everywhere at once."

"Where were you last night?" Mark glanced towards the cluster of men, then back at the old watchman. "Do you stay on the job all the time?"

"Mostly. Sometimes I take a walk into town to see a movie or take a drink." Joe looked furtive. "You know how it is."

"I can guess. So you wouldn't know whether a car drove in here on any one night or not."

"Not for sure," admitted the old man. "Usually I hear them but pay no attention.

They can't do any harm on the dump, and I'm too old to argue."

"So much for the witness," said Stanley. He seemed about to say more, but changed his mind as Doc Lancing came towards them. The doctor was no longer young, a veteran of two wars, and he had seen mayhem in many forms during his years as police surgeon. Now he looked white and sick.

"We've dug him out," he said. "Male, white, about forty and of medium heavy build."

"How long dead?"

"About three days." Lancing fumbled for a handkerchief and dabbed at his face and neck. Mark looked at him with mounting impatience.

"All right," he said. "You know what I want. How did he die?"

"I'm not sure," said Lancing. He put away his handkerchief. "I'll make out a full report after the autopsy."

"Poison?" Stanley asked the obvious question.

"Maybe. I can't be sure as yet, but I don't think so." Lancing swallowed. "All I can be sure about is that the victim suffered agonising torture."

"Torture?"

"That's what I said, and I meant it literally. The man, as a man, is almost unrecognisable."

He wasn't exaggerating.

Director Hammond was a plump, jovial-seeming man who took pains to appear more like a prosperous man of business than the chief of the mental hospital which he was. In a way he was right to do so. Running a hospital, any hospital, required a shrewd talent for squeezing donations from people who first had to be persuaded that charity was a good investment. And Homedale, despite what he said, was not a good investment. Not, that is, if the restoration of a semblance of sanity to the mentally deranged without immediate financial return was compared

to fat dividends paid regularly for money invested in gilt-edged shares.

But he tried. He tried because the initial drive which had led him first to study medicine, then psychiatry, had not yet been smothered by economic necessity. So he became more and more the beggar and less and less the man of science and, somehow, he managed to keep the hospital barely solvent.

"You see, Mrs. Cauldwell," he said, and smiled as he said it. "We each of us have a duty to the unfortunate. They come to us, the rich, the poor, the mentally ill, and we give them the best we have so that they may, once again, take their places in society."

Mrs. Cauldwell nodded. She was a fat woman, too fat, with a chin which kept beauticians happy, and a skin which defied cosmetics to appear youthful. She sat in Hammond's office and let her shrewd little eyes survey the luxurious appointments.

And they were luxurious.

Hammond was no fool and knew his psychology. He knew that poverty repels and wealth attracts. So he had squandered needed money on satin-smooth panels, thick carpets, silver accessories on his walnut desk, expensive prints on his walls. The office reeked of money, of luxury, of comfort. It was a snare to garner more of the same.

"I'd like to help," admitted Mrs. Cauldwell. "I think that charity is one of the highest virtues, but . . ."

Her hesitation was obvious and Hammond sighed as he prostituted his art. The woman was willing to spend, willing to make a fat donation, but first she wanted him to convince her that she was doing a fine thing, a great thing, a wonderful thing. Privately, he wished that he could tell her just what to do with her money. Instead, he told her what she wanted to hear.

He piled it on. Words cost nothing, and her money was more important to him than

his pride. He saved the most powerful argument until last.

"Naturally, any donation you should make to the hospital can be set against your income tax." His smile was pure man-of-the-world. "In that case a large donation would only cost you a fraction of its face value. It would mean a lot to us, little to you, but of course, that would not be mentioned in the publicity."

She nodded, her eyes thoughtful and, watching her, Hammond had a moment of intense revulsion. He knew her type, knew it too well. She was the sort of woman, wealthy, jaded, who was willing to spend money for the opportunity of talking dirt to a man under the guise of psychological treatment. Her interest in the hospital was a fad, an opportunity to acquire a thrill but, as long as she paid for it, Hammond was willing to accommodate her. He rose to his feet.

"Would you like to see the wards? I would be happy to

guide you over the hospital."

She agreed, as he knew she would, and together they left the soft comfort of the office for the bleak sterility of the hospital proper.

It was, in a way, a trip into hell.

The hospital was crowded, the staff overworked, the routine reduced to one of inhumanefficiency. Hammond led the way down a narrow corridor lined with doors, each door fitted with a panel of toughened glass.

"Padded cells," he explained. "For the most violent cases."

"Violent?" She craned her short neck and peered through the glass. "This one seems quiet enough."

"They have their cycles of emotional activity," said Hammond. "Sometimes they just sit and withdraw into themselves, at others they will burst into unmanageable rages, and always we have to guard against the possibility of suicide."

He continued the tour.

"This is the day room. Here we allow the milder patients to mingle and talk. Conversation amongst themselves is a form of therapy."

"They look normal enough," said Mrs. Cauldwell. She seemed disappointed.

"They are unpredictable, not violent, you understand, but maladjusted." Hammond didn't even try to explain the various mental illnesses which made life a burden to each and every patient. He opened other doors. "Occupational therapy, weaving, basket-making, painting, handicrafts, things like that." He gestured to the equipment clustered in the room. "Many of the items made by the patients are of great artistic beauty."

"Then why don't you sell them?" Mrs. Cauldwell sniffed as she asked the question.

"We do," said Hammond quietly. He led the way towards the far wing of the hospital. "Perhaps you would like to see the laboratory."

"The laboratory?" She seemed disappointed.

"We call it that," said Hammond. He didn't look at the woman. "A better name would be the operating theatre."

She smiled.

John Evans was working behind the screen when they entered. He straightened, his thin cheeks paling, then forced himself to smile as Hammond introduced the woman.

"Mrs. Cauldwell is very interested in our treatments," said the director. "Would you show her some of our equipment?"

"Certainly." John had been through all this before and knew what to do. He led the way to the operating table. "This is where we give electric shock treatment," he explained. "Sometimes a high voltage charge can ease the inner conflict of a patient with beneficial results. The charge is quite high, almost equal to that of the electric chair, and it is applied through

electrodes attached to the temples."

"I see." The woman reached forward and fingered the electrodes. "Does it hurt?"

"Not really. The shock is of short duration and stuns the higher centres of the brain." John was careless of his terminology, knowing that she would accept anything he said. "If shock-treatment doesn't work, then we have recourse to outright surgery. You have heard of lobotomy?"

"Vaguely. Something to do with the brain, isn't it?"

"Yes. We insert a thin probe into the forepart of the brain and slash the tissues. The theory is that, if we can't fix it, we can destroy it." John caught himself at Hammond's expression. "The technique has proved most helpful in stubborn cases but, naturally, we try everything else first."

"Why?" Mrs. Cauldwell frowned. "If lobotomy is so successful, then why not just do it to all of them and save time?"

"The expense is prohibitive," said Hammond smoothly, before John could speak. "Lobotomy is a delicate operation." He glanced around the laboratory. "Where is Carl?"

"Gone."

"Gone?" Hammond didn't pursue the subject. Instead, he smiled at the woman as he led the way towards the screened corner. "I think this machine would interest you, Mrs. Cauldwell."

"What is it?"

"An electroencephalograph, a machine which measures the electrical emissions of the brain and records them in the form of a graph." Hammond picked up a discarded recording. "See? Those jagged lines are such a recording. With this machine we can diagnose the presence of brain tumours with almost a hundred per cent. efficiency. We can also distinguish between normal and abnormal mentalities with a fair degree of success."

"Interesting," said the woman.

"Very." Hammond smiled at her as if struck by a sudden thought. "Would you like to make a recording? It would be a pleasant souvenir of your visit." His smile widened at her hesitation. "It doesn't hurt. You won't feel anything but the light pressure of the cap on your head. John." He gestured towards the technician. "Take a recording of Mrs. Cauldwell."

He stepped back and stood watching as Evans sat the woman in the chair, calmed her fears, adjusted the electrodes and turned to his recording drums. At first Hammond watched the woman, smiling with inward contempt; then, as his eyes strayed over the equipment, he frowned in thought.

The electroencephalograph looked different to when he had last seen it. There were more accessories, more banks of equipment; the entire machine looked far more complex than he remembered. Hammond hadn't stepped in-

side the laboratory for a long time and hadn't inspected the equipment since it had been installed. Memory, he knew, could play strange tricks, but even his memory couldn't be so far out as to forget the cumbersome helmet made of glinting alloy, the writhing wires and hooded components humped next to the chair. Such things just didn't belong to the normal operation of the machine.

He smiled again as John released the woman and handed her a torn-off strip of paper. Hammond stared at it, recognised the typical pathological pattern, and smiled as he folded it and handed it back to Mrs. Cauldwell.

"A perfectly normal pattern. No trace of brain tumour or any aberration. I only wish that my own pattern showed so much stability."

"You mean there's nothing wrong with me?" Her disappointment was obvious.

"Nothing organic," assured Hammond. "You are suffering from an unresolved

inner conflict and your graph shows signs of tremendous nervous strain, but you are far from being mentally unstable." He sighed as he escorted her towards the door. "It is only when we apply the fruits of modern science that we realise just what burdens many people undertake to carry. If I were to give my professional opinion I would say that you sleep badly, worry constantly, and feel a sense of insecurity. All this stems from the fact that you have never been properly understood. You are in conflict with yourself and those about you. The conflict is on the subconscious level, of course, and . . ."

His voice died away as he led her from the laboratory, along the corridor and up to the office and the final obtaining of her cheque.

The autopsy report read like something compiled from the files of the Inquisition. Mark Engles flipped the pages for the dozenth time, trying

to make sense from what he read and, as before, yielded in disgust.

"Grim." Stanley had his own copy of the report. He threw it onto the desk, produced cigarettes, lit one without offering the package to the captain. Stanley, like most men who live just beyond their income, practiced small economies. "What do you make of it?"

"Someone didn't like the victim," said Mark drily. He opened the report and looked at the typing. "Lancing says that he's never seen such multiple injuries. Listen to this: interior of mouth and throat burned as if by boiling water; joints strained as if by deliberate tension; skin bearing numerous contusions, cuts and abrasions; large areas showing signs tantamount to burning; back and chest criss-crossed with marks of scourging with what must have been a loaded thong; internal injuries coincide with bruising on skin caused probably by impact

with a blunt instrument." Mark glanced at Stanley. "And that's not all. According to the report the man is a mess in every sense of the word. Death was caused by internal hæmorrhage and shock. No signs of poison, though there are traces of other drugs, none unduly harmful. Death took place approximately sixty hours ago."

"It fits," said Stanley. "Say they dumped the body soon after death. It was covered with rubbish and left. Next morning the dump-trucks covered it even deeper, but the day after the bulldozer came and levelled off the heap. The watchman went on the prowl to see what he could find and spotted the victim this morning." Stanley nodded as if satisfied at his own deductions. "It was pure luck that the body was found at all. One more day and it would have been buried real deep."

"Luck," said Mark, and frowned. "The boys get anything?"

"No. They've been the rounds but, as far as they can learn, no one's missing. I've had photographs made and circulated them to the missing persons bureau, the Salvation Army and some of the agencies. They may help."

"I doubt it." Mark blew smoke at the ceiling, stared at it, then looked at the lieutenant. "Done anything with the fingerprints?"

"Sure. I've wired copies to the central records, but we can't rely on them. They won't help unless he's done time, worked at a government plant, been in the armed forces or is an immigrant. But if he was an honest man who kept himself to himself, his prints will be just another set for the files."

"Honest?" Mark shrugged. "I doubt it. Someone must have hated the victim pretty badly. Those injuries were done before death, remember. Now, who would want to kidnap a harmless, honest man and literally torture him to death? To me it looks like

a vengeance killing, a gang job. Maybe he was a squealer, a welcher or a double-crosser."

"Could be," agreed Stanley. "Maybe it wasn't even a local job."

"It was local, all right," said Mark decisively. "No one other than a local would have known about the dump."

"They took a chance at that," said Stanley. "If the watchman had caught them dumping the body they'd have been in trouble."

"If he had caught them then we'd be short one watchman," corrected Mark. "That man's killers were ruthless. They didn't stop at just shooting him or crushing his skull. They took their time about it, slowly torturing him to death and probably enjoying every moment of it." He tilted back his chair and stared at the ceiling. "It was a premeditated crime, obviously. They had everything to hand for the job and that meant preparation."

"How do you make that out?"

"The injuries must have caused intense pain. He must have struggled and screamed and fought. So he was taken to a place where his screams wouldn't be heard, where his killers could take their time and work in peace."

Stanley grunted, neither agreeing nor disagreeing with the captain's deductions. He reached for his copy of the report and leafed through it.

"Clothes don't help. Cheap shoes, cheap suit, cotton shirt, no underwear or socks and no hat, at least we didn't find one. No cleaning marks on the clothes—they looked new, and nothing in the pockets."

"Did they fit?"

"No. The clothes were too big and the shoes too small. Why?"

"Just a thought." Mark straightened his chair. "Let's attack it from the other direction. So far we've assumed that someone prepared everything they needed for the crime and then lured the victim into the trap. Suppose the crime took place where

everything was to hand. Clothes, shoes, instruments of torture. A place where screams and movement wouldn't be suspect. Somewhere local where a man wouldn't immediately be missed."

"A hospital." Stanley was disillusioned, but he was a long way from being stupid. He thought about it and then shook his head. "It doesn't make sense."

"We'll see." Mark riffled the report. "Get a check on this clothing, see if it matches with that given out in the charity wards. Check to see if any of the staff or if any patient is missing. Send the boys round to check the dentists; you know what to do."

"I know," said Stanley. He grunted as he rose to his feet. "But I think the idea's crazy. Only a maniac would have done a thing like that to a man."

"Yes," said Mark softly. "I've thought of that, too."

Sam Conway filled in the

last of the files before him, stretched, reached for and lit a cigarette. His head ached a little from a long, hard day, and he thought of a hot bath, bed, and twelve hours uninterrupted sleep.

He knew he would be lucky to get six.

The door opened and John, seeming to be thinner and more gaunt than ever, entered the office. He closed the door behind him and leaned against it.

"Ready?"

"I'm ready." Sam glanced at his watch, rose, crushed out his cigarette. "Everything under control?"

"Hammond was in the lab today." John opened the door and led the way outside. "He had some old crow with him; after her money I expect, and he had me make an electroencephalogram of her."

"So?"

"So he was suspicious. Hammond's no fool, and he knows what an electroencephalograph should look like. I saw him studying the ad-

ditions we've fitted to the machine."

"Experimental work is permitted," said Sam calmly. They had reached the laboratory and he produced keys, opened the door, locked it behind him. John fumbled for a switch and light streamed from the single bulb suspended over the screened corner. "Will you be the subject or shall I?"

"You." John was nervous. He stared down at the chair, the glistening helmet, the humped equipment. "When I think of what happened to Carl I get scared. Suppose it happened again?"

"It can't," said Sam. "Not while there's someone to do the monitoring." He sat in the chair, adjusted it to a position of maximum comfort, snapped electrodes on his wrists, ankles and throat, then reached up to swing down the helmet. "I'll take it easy," he said. "Five minutes and then you cut the power. Cut it sooner if you see any violent physical reaction."

"What shall I watch for?"

"My wrist." Sam stared at his left arm. "I'll imagine that I'm wearing a heavy fetter, have worn it for a long time; there should be some reaction if the feed-back is still too high." He lowered the helmet over his head before John could argue and, with the fingers of his right hand, tripped the switch in the arm of the chair.

There was no sound, nothing to show that delicate currents were being amplified, filtered, fed back into a circuit which consisted, in part, of the brain itself.

Sam first tensed, then relaxed, then tensed again. It was a minor tensing, a pantograph reduction of his imagined movements, but his muscles jerked a trifle and his skin seemed to crawl.

John watched the left wrist.

Sam was, he knew, now immersed in a dream world in which his imagination was the sole barrier to his accomplishments. It was, in a way, a complete release from

the hampering barriers of reality. What Sam imagined he would experience, peopling his world with creatures of his own imagination. He could commit murder in that dream world, be a king, a slave, anything he chose. It was better than drugs, better than sleep, better than any other stimulus which had to be applied through the senses. For this stimulation came from the subconscious itself, was caught, amplified, fed back in such strength that the vague imaginings became seeming reality. He was seeing, hearing, feeling the amplified stimulus of his own imagination.

The left wrist twitched. The skin began to redden, to show roughness, to display the ghosts of sores and callosities to be expected when rasped by a heavy iron fetter.

John cut the power.

"Three minutes," he said, when Sam had swung back the helmet. "The psychosomatic affinity is still too strong."

"Damn!" Sam sat and rubbed his left wrist. Even as he rubbed the markings faded back to clear, healthy skin. "We seem to be licked every way we try," he said bitterly. "Too weak a feed-back and there is no result. Too strong and the imagined world has a direct bearing on the physical well-being."

"Are we still using Carl's new circuit?"

"No, that was too strong. I put in a moderation, but it isn't much better." He stared thoughtfully before him. "We've got to keep trying, John. The machine, as it is, is too much like holding a tiger by the tail. We daren't release it and it's too good to forget. If we can only lick this problem of too great a psychosomatic affinity between the physical and the mental worlds we've got something which will revolutionise the treatment of the insane. In fact, it will be the only treatment necessary."

John nodded. He had heard all this before. Take a patient,

put him under the machine and let his subconscious work off all its frustrations and conflicts in the harmless world of dreams. Let a man kill his father and marry his mother, a daughter kill her mother and marry her father and so get rid of the Oedipus and Electra complexes with their attendant feelings of guilt and shame. Let natural hate vanish in vicarious murder, let thwarted desires have free rein, let the whole twisted mess of insanity and aberration free itself by satiating itself in the world of dreams. For when anything is permitted frustration cannot endure.

It was the dream for which Carl had died.

Hammond sat at his desk and looked at the two men before him as if he still couldn't believe what he saw. Mark Engles, impatient and tired, glanced at Stanley, then back at the director.

"Have you sent for them?"

"Yes." Hammond reached

out to an intercom, pressed a switch, spoke into the machine. "Have Evans and Conway arrived yet?"

"Just arrived, sir." The voice echoed from the speaker. "Shall I send them in?"

"Immediately." Hammond switched off and stared at the two men as they entered the office. He made introductions, his shrewd eyes not missing John's sudden pallor or Sam's instinctive tension. They sat down, fumbling for cigarettes to cover their nervousness, keyed and tense as they stared at the officers.

"I'll make this brief," said Mark. "Yesterday, a dead man was found on the city dump. We now know who he was, Carl Mayhew, a resident doctor to this hospital."

"Carl, dead?" Hammond glanced at Sam and John. "How?"

"He was tortured to death," said Mark evenly. "He was savagely murdered, stripped, dressed in cheap, give-away clothing and then buried in stinking rubbish. Someone,

apparently, didn't like the late Mr. Mayhew one little bit."

"Impossible!" Hammond was shocked. "Carl was one of the most popular members of the staff. Who could have done such a thing?"

"That," said Mark quietly, "is what I intend to find out." He stared at Sam and John. "I've already made certain inquiries. I know that the clothing he was found in came from this hospital; it matches that worn by your patients. I know that he was very intimate with Evans and Conway, and they were in the habit of working together at all hours. Conway has a car. The night porter here reports that he saw two men carrying a bundle enter a car and drive off at the critical time. When he checked he found that Conway's car was missing. He looked for Conway but couldn't find him, and next morning the car was back in its usual place. So the porter forgot about it until I questioned

him." He looked at Sam, his face expressionless. "Ready to talk?"

"I have nothing to say."

"And you?" Mark stared at John. "Did you quarrel with Mayhew? Did you hate him so much that you took him and tortured him to death?" Mark took the autopsy report from his pocket and began to read aloud. "Burning on the inside of mouth and throat. Hot water, Evans? Did you ram a funnel into his mouth and empty a boiling kettle into it?" He glanced again at the report. "Multiple contusions and internal injuries. Did you kick him, Evans? Jump on him while he was lying bound and helpless? Did you . . ."

It was pure psychology, the playing of a man's weakness against himself. And, listening to the even, coldly clinical voice, Sam had to admit that the captain knew what he was doing. He seemed to have a peculiar imagination when it came to pain. He dwelt on every detail, lingering on just

how the victim must have felt and suffered. Had he been speaking of a stranger it would have been bad enough, but he was talking of a friend.

John did the only thing he could do. He broke.

"Stop it!" he shouted. "Stop it I tell you!"

"Do you admit you killed Mayhew?"

"I didn't kill him. No one killed him. We hid the body, yes, but that was all."

"Suicide?" Stanley shrugged as if now he had heard everything.

"Yes." John was desperate for belief. "He didn't kill himself deliberately, but he died just the same. He was testing the machine and we found him in the chair. It was horrible! Horrible!"

"Steady!" Sam knew that it was time for him to take over. He pressed John back into his chair. "What Evans says is the truth. We were working on a new discovery and Carl insisted on testing it alone. It killed him."

"How?"

"I'll have to put it in layman's language, but perhaps you can understand. We developed a machine to increase the dream-world. We call it that for want of a better name. What it does is simple. It amplifies the subconscious and overrides the external stimuli so that thought becomes apparent reality. If you think you see a tree then you actually see a tree. A temple, the same; an army, the same; imagination has no limits. The . . ."

He went on with the explanation, trying to put into simple words the technical jargon of his profession. He stressed the affinity between body and mind, the psychosomatic effects of concentrated thinking, drew poor analogies and stated unprovable cases. And returned always to the one point he had to drive home.

"The machine is fatal with its attraction. You forget the passage of time, the external world, everything. The sub-

conscious takes command, and the subconscious has no censor. There should always be a monitor to watch for the physical reactions and cut the power if things go too far. But Carl was alone."

"And?"

"And so he died. Remember that, what he imagined, to him was real. And the more he sank into the dream world, the greater the feedback from his subconscious became, and the more violent his physical response became to the accepted stimuli. And the subconscious has no censor. It goes the whole way."

"I begin to see what you are getting at," said Hammond suddenly. "Pain and the love of pain. Carl?"

"Yes. Carl was a masochist. He literally tortured himself to death."

Mark was not an unintelligent man. He had read widely and garnered knowledge from odd corners. He knew what a masochist was,

a person who derived pleasure from personal pain, and, assuming the existence of the machine, his death was logical.

But he needed proof.

Hammond, too, was not unintelligent and already his mind had leapt ahead. This trouble would be cleared up. The machine, because it had been developed with Homedale money and Homedale staff, would belong to the hospital. It would prove a boon to the treatment of insanity, but it would be more than that. Such a machine would be in immediate demand in the world of entertainment. His money worries were over.

Sam noticed the director's expression, guessed what had caused it, and inwardly smiled. Hammond was in for a shock. He explained why as he led the way across the laboratory towards the screened corner.

"This machine is no toy. It is dangerous, it can harm and, as we have seen, it can kill. Most people are cursed

with the death-wish and, under the influence of the machine, that buried desire to escape from worry and responsibility will take over. It would be safe to say that, in its present form, the machine would decimate the population overnight."

He glanced at Mark.

"Ready?"

"What do I have to do?"

"Just relax. Then think of something, anything, and your thoughts will become real to you. After a while you'll find that you no longer have conscious choice of what you experience. That will be when the subconscious takes over. You can, naturally, exercise some initial control, and that control may last for a little while. But eventually you will, consciously, take a back seat." Sam chuckled. "It's surprising how many people have the buried desire to hurt themselves. Most of us suffer from one form of guilt or another and, subconsciously, we are always trying to punish ourselves.

That is why I doubt if this machine will ever be a commercial proposition. It strips the veneer from a man, and most people do everything they can to retain that veneer."

He watched as John adjusted the chair, attached the electrodes and lowered the helmet. A switch clicked, Mark tensed, relaxed, tensed again. Hammond looked towards Sam and John, then glanced at Stanley. He was worried. The machine overrode every other consideration. Sam and John were guilty of attempting to hide a death and misuse of equipment, but all that could be forgotten if only they could prove their point.

But they had to prove that Carl had died by accident.

The minutes passed, slow, dragging, then Stanley leaned forward, his face white.

"Turn it off!" he ordered. "Turn it off!"

Mark had received his proof.

He was a masochist, too.

Psychology can explain anything, even why everyone should be afraid. But sometimes even psychology can be wrong

Misplaced Person

by FRANK WINNARD

THE FEAR WAS WITH HIM day and night, riding his mind like some fantastic old man of the sea and colouring his every thought and action. During the day, sometimes, he managed to press it to the back of his mind, ignoring rather than forgetting it in the pressure of business. But that didn't last, and the fear always returned with increased violence. At night it was even worse. He would lie, trying for the sleep he could never obtain, and feel his fear mount until it controlled his very body so that he would shiver and writhe with impotent helplessness as the slow hours dragged on to the dawn.

And the worst part was that he didn't know why he should be afraid.

Inevitably, he sought help.

The psychologist was a man without degrees, but with a shrewd insight into human nature which served him well. He knew when to act the charlatan, when to admit defeat and, most important of all, when to call in outside aid. He didn't often have to call in outside aid. He stared at his patient and adopted his professional smile.

"Good afternoon, Mr. Renold. May I ask who recommended me to you?"

"No one." Mark Renold felt vaguely uneasy as he stared round the consulting room. That couch . . . those

lamps . . . that case of instruments . . . He fought his rising fear. "I was passing and saw your name-plate outside. Is it important?"

"Of course not." Henderly's emotion was one of relief. This was one fee which he wouldn't have to split. "Well, suppose you tell me just what is troubling you?"

"I am afraid," said Mark, and, as he admitted it, the fear rose within him so that he felt as if he wanted to be sick.

"Afraid? Afraid of what?"

"I don't know. That's the worst part about it. I've got nothing to be afraid of."

"That isn't quite true, is it?" Henderly relaxed in his chair and smiled at his patient. "Everyone has something to be afraid of. Most of us manage to live with our fears, master them, devalue them so that they are no longer troublesome. Others, perhaps like yourself, exaggerate them to an inflated importance." He smiled again. "Don't worry about it.

Your case is by no means new and should present no difficulty."

"I'm glad to hear it," said Mark. "I don't think I can put up with it much longer."

"Suicide?" Henderly looked interested. "Have you ever considered killing yourself?"

"No."

"Are you sure? Have you never had a momentary impulse to, say, throw yourself in front of a train or bus? Or, if in a high building, to cast yourself down from the roof?"

"No."

"Then how would you consider ending it all?" Henderly frowned at his patient's baffled expression. "You said that you doubted your ability to put up with it much longer," he reminded. "That is an unconscious determination to commit suicide in order to escape."

"I don't think so," said Mark slowly. "I've never thought of self-destruction. It's just that I feel that, unless I stop being afraid,

I'll have to do something, but I don't know what."

"Confusion of semantic terms." Henderly nodded. "Are you a religious man, Mr. Renold?"

"Religious? I'm not sure that I know what you mean."

"Do you have faith? It needn't be in an orthodox religion, but do you believe in a dogma which forbids self-destruction?" Henderly deliberately used Mark's own terminology.

"I mustn't destroy myself." The statement was flat, unemotional, and, recognising the barrier, Henderly yielded the point.

He sat back and stared at the young man before him with professional interest. Not a hypochondriac, obviously. He had mentioned no imaginary ills and, Henderly knew, no one is, or can ever be, depressed without reason. He looked fit and didn't appear to be suffering from any psychosomatic disorders. He decided to make certain of that.

"Do you have any physical

discomfort, Mr. Renold? Any odd pains, shortness of breath, erratic heart beat or any skin irritations such as itching, boils, scabs or festers? Is your digestion good? Do you ever get any aches or throbbing in the joints?"

"I don't think so." Mark frowned as he tried to remember. "No, nothing like that."

"I see. Do you sleep well?"

"I don't sleep at all."

"You mean that you don't get a good night's sleep? That you doze and wake, only to doze again?"

"I mean that I don't sleep at all," insisted Mark. "I never have done."

"Never? Not even as a child?"

"I don't remember ever being a child."

"I see." Henderly didn't, but he needed time to think. Amnesia? Possibly, but if it was, then it had taken an odd form. Paranoia? So far there had been no indications of it aside from the confessed fear. Schizophrenia? To a limited extent, certainly, but most

people were mildly schizophrenic. He decided to try paranoia.

"Tell me, Mr. Renold, this fear of yours. Are you afraid of physical violence?"

"No."

"Of others conspiring against you? Tell me, do you have the impression that you are being persecuted in some way?"

"No."

"Is there any person, or group of persons, of whom you are afraid? Or, to put it another way, do you have cause to fear the actions of anyone?"

"I don't think so," said Mark slowly. "I . . ." He shook his head.

Henderly sighed. This case was going to take time and might prove to be more difficult than he imagined. For a moment he toyed with the idea of collecting his fee and washing his hands of the whole thing. Then, as he glanced at his empty appointment book, he changed his mind. He smiled as he

did so, knowing that money wasn't the sole reason for wanting to continue with the case. He also had a healthy curiosity and a desire to find out the extent of his own powers. Renold could serve as a testing ground.

"To return to your fear, Mr. Renold. Have you always had it?"

"I think so, yes."

"And you don't know why you should be afraid?"

"No. If I did I wouldn't have come to you."

"Logical." Henderly nodded. "But to return to your fear; you realise, of course, that something must have caused it? It could be something stemming from a long time ago, or it could be something so trivial that you simply refuse to recognise it as the basis of your fear. You can think of nothing, no matter how apparently trite, which could cause it?"

"No. I told you, I have nothing to be afraid of."

"You are human, I take it?"

"What!" Renold half rose, then slowly sat down again. "I don't understand."

"If you are human then you have cause for fear. Every human has and, obviously, you are human. Do I make myself clear?"

"I think so, yes."

"So you must have something to worry about, something to make you afraid." Henderly toyed with a pencil. "It is one of our attributes that the human race is never, at any time, wholly free from fear. A murderer, for example, is afraid of execution; a thief of discovery; a criminal of punishment. A man in love with his wife is afraid that she may leave him, or that she will not return his affection. A man with money is afraid of losing it; with possessions afraid of losing them. A man with a good job is afraid of losing it and, with it, the security it represents. If he has a poor job he is afraid that he may not be able to get a better. If healthy, a man is afraid of

sickness; if young, of age; if old, of senility. And everyone is afraid of war, of personal disfigurement, of being maimed and, of course, of death itself. If you are human you share these fears; you simply cannot help yourself. They are part of your heritage." Henderly paused.

"So you see, you must have a reason for your fear. I'm not suggesting that you have murdered someone, but fear is not proportionate to the cause of that fear. It is possible for a man to be just as terrified at the prospect of an invasion from space as it is for him to fear the far higher probability of being killed in a street accident. Imaginative fears are just as real and as serious to the individual as actual ones. In some cases they are worse because a man's imagination is the strongest thing he has. So your fear need not be caused by something real at all. It could be caused by a supposition, a figment of your imagination, a possibility

which may never come true. But until we know the cause of that fear, we cannot eradicate it."

"I don't know why I am afraid," said Mark patiently. Mentally, he checked everything the other had mentioned. He was no criminal, he knew that, and he had little money and no possessions. Fear of emotional loss was foreign to him and he discounted physical maiming and age. For a while he thought of total oblivion, then gave it up. That was not the cause of his fear.

"And yet you came to me," reminded Henderly. "You recognised the fact that alone you are unable to help yourself." He picked up a pencil. "Quite often straight discussion with a qualified person is sufficient to eliminate minor difficulties. The Church, of course, has known that for centuries; the confessional is the simplest form of applied psychology, and it is surprisingly effective. However, as you do not adhere to any

orthodox religion, they cannot help you. We must operate through logic and self-conviction. What is your profession, Mr. Renold?"

"I ask questions." It was true, he did ask questions, lots of them. "And I travel a good deal"

"Market research?" Henderly nodded. "Do you like your work? Are you happy with it?"

"I am efficient," said Mark. Again he pondered what the other had said. Happy? Should he be happy? The fear rose within him and he clutched at the arms of his chair. If Henderly noticed the reaction he didn't pass comment.

"You say you are unable to sleep. Did this insomnia come after, or before, your fear?"

"I have never been able to sleep."

"I see." Henderly didn't make the mistake of arguing. "Does it worry you? Are you afraid that, unless you sleep, you will fall ill?"

"Not ill." Mark paused. "Disturbed? Yes, disturbed." He tried to explain. "Everyone sleeps, don't they? If they don't sleep then they can't be efficient. I must remain efficient."

"Then is that the cause of your fear? Do you feel that, because you can't sleep, you are heading for breakdown?"

Henderly felt that, at last, they were getting somewhere. "Insomnia is usually a symptom of mental unrest, but I suppose that it could be the cause of fear in itself. Tell me, do you feel tired, listless, unable to concentrate on your job?"

"No." Mark was quite definite about that. "And I'm not afraid because I can't sleep. I just feel that I should."

Henderly nodded. "One other thing. Your emotional life—are you engaged, married? Do you have a girl?"

"No."

"Have you ever had one?"

"No."

"I see. You say that you cannot remember your childhood. How far back can you remember?"

"I don't know." Mark appeared baffled. "It seems that I've always been like this."

Amnesia with some paranoia, and most definitely schizoid. Henderly felt proud of his diagnosis. The trouble was obviously the old Freudian one. Renold must have been in his late twenties, and, if he spoke the truth, his basic urges had taken a terrible beating. He decided to try a short cut.

"I can help you, Mr. Renold," he said, with professional assurance. "Naturally, I shall need your cooperation. I intend to try hypnosis. You have a tremendous sub-conscious barrier which we must somehow break down to permit of the uninhibited flow of early memories. Your fear is obviously the result of insecurity caused by having lost the memory of your early life and childhood. Once we restore that, then

your fear will vanish and you will be wholly normal again."

He busied himself setting up the visual hypno-aid, an impressive apparatus consisting basically of an interrupted light source focused with mirrors into the eyes of the patient. He also selected an injection-ampoule of a drug designed to increase the susceptibility of the patient. He smiled as he approached Mark.

"This won't take long. If you will bare your wrist, please? Thank you." Expertly, he slid the needle beneath the skin, then frowned as he struck something hard. He pressed and the needle broke. Startled, he looked at his patient. Mark was lying back, obviously unconscious of the pain he should be feeling, his eyes staring at the hooded shape of the hypno-aid. Henderly withdrew the broken needle. "Comfortable? Good. Now just stare at the lights and listen to my voice. Ready? Now!"

He switched on the machine.

Lights. Flashing and swirling and colourful just like those other lights he had seen when . . .

When?

Mark felt his fear mount to an almost sickening pitch so that he trembled as he fought the desire to get up and away. Desperately, he stared at the flickering pin-point, not hearing the smooth voice beside him as Henderly suggested that he should sleep . . . sleep . . . sleep . . .

But he couldn't sleep. He had never slept and never would. He had never had a girl, either, and . . . and . . .

Mark rose from the chair and smiled towards the startled psychologist.

"Thank you," he said calmly. "I am cured now."

"Cured? But how? The treatment has only just begun." Henderly ran after Mark as he headed towards the door. "Wait! Tell me how I cured you. Please!"

Mark didn't answer. He was out of the office and

heading towards the street as fast as he dared. Time, too much time, had passed and not enough remained. And yet, was it his fault?

Who would have guessed of the hypnotic effects of the lights? Not those alone, of course, but all the other deranging impulses emitted from electronic machines, especially the ultra short waves used in the reproduction medium. They had been the direct result of his trouble.

The rest had followed with inevitable logic.

To be normal he had to act normal, and he couldn't do it. Sleep, for example. He couldn't sleep, and he had let it worry him. All men slept. Therefore, he should sleep, too. And women. He had wondered about that, too. All men desired women, and yet he had felt no emotional reaction at all to them. Nor, for that matter, towards anything else. No sleep, no emotions, none of the thousand things which made men what they were.

No wonder he had been afraid.

His fear had been caused by his not acting as others acted. His amnesia, forgetfulness rather, but the unfortunate combination of circumstances. Bright lights, suggestion, the flooding electronic impulses—he should never have been stupid enough to have ventured into that place of entertainment. It had given him a false identification with people utterly divorced from what he actually was.

The fear was still with him, but it was understandable now. It was a warning, nothing more, and he lengthened his stride as he left the city.

If he had known laughter he would have felt amused. It was ridiculous, the concept of a thing of steel and plastic thinking that it was a man and knowing the derangement because it couldn't act and feel like one.

Impatiently, he strode towards the waiting vessel which was to take him home.

Space isn't as cold as generally supposed. In this article a commonly-held fallacy is brought up to date

KEEP COOL!

by COLIN MAY

ONE OF THE LEFT-OVERS from the early days of science fiction is the concept that space is cold. For some reason all the early writers insisted on the "absolute zero" of space. You may have read the kind of thing. The villain, or maybe the hero, steps unprotected into space and is immediately frozen solid. We had space-ships heavily insulated against the "chill of space" and were bombarded with purple passages all designed to point out "the bleak and frigid void," the "numbing cold of space," and so on. Look for them in the early stories and you'll

find them by the dozen, and all bearing the same message. Space is cold. Space is very cold.

Now, of course, we know better. Don't we?

Before we can finally blast this entirely false concept, it is important to know just what temperature is. Temperature is the measure of a body's "hotness" or "coldness", and it may be said that the change in temperature of a body is a measure of the change in energy of the atoms or molecules of which the substance is composed.

Obviously, then, if there is no substance, there can be no

atoms or molecules to change energy. So, no substance, no temperature.

Just to make it quite clear. We can say, for sake of simplicity, that heat and molecular motion are so closely aligned that they are almost the same. Apply heat and the molecular motion will increase; remove heat and it will decrease. A substance with a low molecular motion—a cold body—will absorb heat from one with a high molecular motion—a hot body. That is why you put ice cubes in soft drinks, not to dilute them, but to cool them.

But space is a vacuum and has no substance whatsoever, aside from a scattering of atoms which, for our purpose, we can ignore. And a vacuum cannot transfer heat from one object to another, which is why it is used for insulating purposes; a vacuum flask will keep liquids hot because of that lack of heat-exchange. So, space, because it is a

vacuum, cannot be either "hot" or "cold."

Space has no temperature at all.

But what about things in space? It is possible that, somewhere in the void, there are meteors and other cosmic debris which are at absolute zero. Absolute zero is the lowest theoretical temperature possible and is nought degrees Kelvin, which is degrees Centigrade plus 273. Water freezes at 273 degrees Kelvin and boils at 373 degrees Kelvin, while body temperature is 303 degrees Kelvin. On the Centigrade scale, absolute zero would be -273 degrees, and at this temperature all molecular motion would have ceased. Remember, we are talking about objects in space, not space itself. The "absolute zero" of space belongs only in fiction.

All right, now let's get nearer home. A meteor crashes through the hull, the air escapes into the vacuum leaving behind a thin rime of frost. Cold? Certainly, but

not because of anything inherent in space itself. Any gas, when released from compression, will show a marked drop in temperature, and the greater the expansion the greater the drop. This is understandable when we stop to think about it.

Take a room, or the cabin of a spaceship, with a capacity of a thousand cubic feet and a temperature of fifty degrees Fahrenheit. Compress it into one tenth of its previous volume. We now have a tank of gas of one hundred cubic feet—but we still have all the heat of the original quantity. In other words, we have one hundred cubic feet of gas at a temperature of 500 degrees Fahrenheit—this, incidentally, is the principle of the diesel engine.

Now do the reverse. Let the air in the cabin expand to infinity. Naturally, the temperature drops with a consequent freezing of any moisture content. The same principle is used in all refrigeration devices.

Here on Earth heating and cooling are complicated because we have to deal with three variables instead of one. In space the reverse is the case. On Earth there are three ways by which an object can lose heat: by conduction, by convection and by radiation. Heat a bar of metal until it glows; that is radiation. Wave it about and let the air cool it; that is convection. Dip it into a bucket of water; that is conduction. And an object can gain heat in the same way.

In space it is different. Unless material is actually thrown away so that the heat goes with it, as in the incredibly hot exhaust gases, for example, the only way to lose heat is through the radiation of electromagnetic waves; infra-red in the case of cool bodies, and visible light as well in the case of extremely hot ones, such as the glowing bar of metal.

Heat can also reach a body by radiation from the sun or the stars. It can also

be generated through chemical process in the human body, or by mechanical means aboard the ships, cooking, electric lights, etc. And, naturally, the hot linings of the rocket tubes cannot be thrown away like the exhaust gases and the heat from them would not be negligible.

Now we know that a black surface and a shiny surface have different radiation efficiencies. They vary from unity for a dead-black surface, down to one tenth or less for a shiny surface, such as metal. In other words, a dead-black surface will radiate ten times as much heat as a shiny one of the same area. It will also absorb ten times as much radiation.

With this information, plus some not-too-elaborate formulæ on the law of radiation, we can work out the heat loss of a man in a spacesuit. If the suit has an area of approximately 30,000 square centimetres he will lose, in a shiny suit, about 144 watts. In a black suit he

will lose ten times as much, about 1,440 watts. The human body, in the normal process of living, produces 150 watts. In a shiny suit, therefore, he will slowly gain heat, while in a black one he will eventually freeze to death.

This, however, is supposing that the man is deep in interstellar space well away from the effective radiation of the sun. Nearer to home, what with his own heat-generation, plus the radiation warming him from the sun, freezing to death will be the last thing he need fear.

In fact, getting rid of his excess heat will be his main problem.

It will be a problem in spaceships, too. Unfortunately, heat is indispensable from our normal life. We ourselves are heat engines and all our machinery wastes heat. An electric light radiates a lot of heat; the very act of cooking, generating electricity, operating small machines, and the hundred normal, everyday tasks of living all generate

some form of heat, either by friction, chemical processes or radiated energy

To retain that heat, in space, is no problem. A ship with a polished surface will radiate only one tenth of a ship with a blackened hull. If we surround a polished ship with a second hull, also polished on both sides, we have enclosed the vessel in a heat shield. Owing to the reflection-radiation between the opposed polished sides of the shields the actual heat loss will be cut to a point where the unshielded vessel would have lost heat 2.9 times as fast. Increasing the number of shields cuts down the loss in geometrical progression so that a ship or object surrounded with three shields would have a ratio of 70, five shields a ratio of 200, etc., so that a vessel protected with five shields would only lose one two-hundredth of the heat it would have done if unprotected.

So negligible would be the heat loss of an interstellar

vessel protected with a multiplicity of shields that the body heat from a single crewman could possibly more than restore the heat radiated away.

Obviously, the man in a spacesuit need have no worries. All he has to do is to cover his shiny spacesuit with a thin, polished, metallic bag of say, flexible aluminium and he would be quite safe from freezing. But he would probably suffer intensely from heat prostration instead.

Keeping warm in space is no problem. Keeping cool is. There is only one practical way to lose heat in space, and that is by radiating it away. Obviously, the closer we go to the sun, the less efficient our system for cooling the ship is going to be. For, as we near the sun, so we gain more and more heat from its absorbed radiation. A compromise would be to have our ship in the shape of a flat disc, one side polished and the other darkened. The polished side would be kept facing the sun so as to reflect,

and so avoid, most of the radiation. The dark side, fitted with a multiplicity of vanes so as to increase the area, would be working to radiate the unwanted heat away from the ship.

Aside from radiation, there is one other method in which to cool the ship. It is wasteful, terribly so, but it would work.

We have already seen that a rapidly expanding gas will lower its temperature. It does that because it spreads its heat content over a wider area. We can also trap the heat of a room by compressing the gas and so localising the heat.

Let us imagine that the ship has reached the point where the heat is causing acute discomfort. The structure is hot, the air is hot, everything is hot. Now, if we bleed the air off into space it will take its heat with it and, at the same time, cool by

expansion. We re-seal the hull and open fresh containers of liquid air. These have been kept in shielded vacuum and have been insulated. The liquid air will absorb heat and so further cool the ship.

But the system is going to need a lot of liquid air.

This heat-factor is going to be a nuisance when space is finally conquered. It will be solved somehow, that is certain, but in the meantime the problem remains. While the average adult continues to generate so much body heat crewing the rockets may be guided by that fact. Two men, yes. Three men, no; too much generated heat. And it could have a direct bearing on the length and duration of exploratory flights.

One thing is certain—"keeping cool" in space will be more than just a saying. It will be a headache of prime importance.

A neat story by a famous author which exemplifies a number of well-known proverbs

The Great Judge

by A. E. VAN VOGT

JUDGMENT," SAID THE radio, "in the case of Douglas Aird, tried for treason on August 2nd, last——"

With a trembling movement of his fingers, Aird turned the volume control higher. The next words blared at him:

"——That Douglas Aird do surrender himself one week from this day, that is, on September 17th, 2460 A.D., to his neighbourhood patrol station, that he then be taken to the nearest converter, there to be put to death——"

Click!

He had no conscious memory of shutting off the radio. One instant the sound roared through his apartment, the next there was dead silence. Aird sank back in his chair and stared with sick eyes through the transparent walls out upon the shining roofs of The Judge's City. All these weeks he had known there was no chance. The scientific achievements that, he had tried to tell himself, would weigh the balance in his favour—even as he assessed their value to the race, he had realised that the Great Judge would not consider them from

the same viewpoint as himself.

He had made the fatal error of suggesting in the presence of "friends" that a mere man like Douglas Aird could govern as well as the immortal Great Judge, and that in fact it might be a good idea if someone less remote from the needs of the mass of the people have a chance to promulgate decrees. A little less restriction, he had urged, and a little more individuality. With such abandon he had spoken on the day that he succeeded in transferring the nervous impulses of a chicken into the nervous system of a dog.

He had attempted to introduce the discovery as evidence that he was in an excited and abnormal state of mind. But the magistrate pronounced the reason irrelevant, immaterial and facetious. He refused to hear what the discovery was, ruling coldly:

"The official science investigator of the Great Judge will call on you in due course, and you will then turn your

invention over to him, complete with adequate documentation."

Aird presumed gloomily that the investigator would call in a day or so. He toyed with the possibility of destroying his papers and instruments. Shudderingly, he rejected that form of defiance. The Great Judge's control of life was so complete that he permitted his enemies to remain at large until the day of their execution. It was a point made much of by the Great Judge's propaganda department. Civilization, it was said, had never before attained so high a level of freedom. But it wouldn't do to try the patience of the Great Judge by destroying an invention. Aird had a sharp conviction that less civilized methods might be used on him if he failed to carry through the farce.

Sitting there in his apartment, surrounded by every modern convenience, Aird sighed. He would spend his

last week alive in any luxury he might choose. It was the final refinement of mental torture, to be free, to have the feeling that if only he could think of something he might succeed in escaping. Yet he knew escape was impossible. If he climbed into his hopjet, he'd have to swoop in at the nearest patrol station, and have his electronic registration "plates" stamped with a signal. Thereafter, his machine would continuously give off vibrations automatically advising patrol vessels of the time and space limitations of his permit.

Similar restrictions controlled his person. The electronic instrument "printed" on his upper right arm could be activated by any central, which would start a burning sensation of gradually increasing intensity.

There was absolutely no escape from the law of the Great Judge.

Aird climbed to his feet wearily. Might as well get his material ready for the

science investigator. It was too bad he wouldn't have an opportunity to experiment with higher life forms but——

Aird stopped short in the doorway of his laboratory. His body throbbed with the tremendousness of the idea that had slammed into his mind. He began to quiver. He leaned weakly against the door jamb, then slowly straightened.

"That's it!" He spoke the words aloud, his voice low and intense, simultaneously utterly incredulous and hopeful to the point of madness. It was the mounting hope that brought a return of terrible weakness. He collapsed on the rug just inside the laboratory, and lay there muttering to himself, the special insanities of an electronician:

"... have to get a larger grid, and more liquid and——"

Special Science Investigator George Mollins returned to the Great Judge's Court, and immediately asked for a private interview with the Great Judge.

"Tell him," he told the High Bailiff of the Court, "that I have come across a very important scientific discovery. He will know what is meant if you simply say 'Category AA'."

While he waited to be received, the Science Investigator arranged his instruments for readier transport, and then stood idly looking around him at the dome-vaulted anteroom. Through a transparent wall he could see the gardens below. In the profusion of greenery, he caught the glint of a white skirt, which reminded him that the Great Judge was reputed to have at least seven reigning beauties in his harem at all times.

"This way, sir. The Great Judge will receive you."

The man who sat behind the desk looked about thirty-five years old. Only his eyes and his mouth seemed older. From bleak blue eyes and with thin-lipped silence, the immortal, ever-young Great Judge studied his visitor.

The latter wasted no time. The moment the door shut behind him, he pressed the button that released a fine spray of gas straight at the Great Judge. The man behind the desk simply sagged in his chair.

The visitor was calm but quick. He dragged the limp body around to his instrument case, and removed the clothes of the upper body. Swiftly, he swabbed the body with the liquid he had brought, and began to attach his nodes. Half a dozen on one side and a dozen on the other. The next step was to attach the wires to his own body, lie down and press the activator.

The question that puzzled Douglas Aird on the day that he succeeded in transferring the nervous impulses of a chicken into the nervous system of a dog was, how complete was the transference?

Personality, he argued with himself, was a complex structure. It grew out of many

quadrillions of minute experiences and, as he had discovered, finally gave to each body its own special neural vibration.

Would it be possible, by artificially forcing that exact vibration upon another body, to establish a nerve energy flow between the two bodies? A flow so natural and easy that every cell would be impregnated with the thoughts and memories of the other body? A flow so complete, that, when properly channelled, the personality of one body would flow into the other?

The fact that a dog acted like a chicken was not complete proof. Normally, he would have experimented very carefully before trying it on a human being. When the Science Investigator called on him two days before the date of the execution, he gassed the man, and made the experiment then and there.

The transference was not absolutely complete. Blurred memories remained behind,

enough to make the routine of going to the Great Judge's Court familiar and easy. He had worried about that. It was important that he follow the right etiquette in approaching a man who normally permitted no one near him but people he had learned to trust.

As it turned out he did everything right. The moment he felt the blurring sensation which marked the beginning of the transfer of his personality from the body of the Science Investigator to the body of the Great Judge, Aird acted. He released a gas toward the Great Judge that would revive the man in about five minutes. Simultaneously, he sprayed his present body with instantaneous anæsthetic gas. Even as he sank into unconsciousness, he could feel the sharp, hard personality of the Great Judge slipping into the Investigator's body.

Five minutes later, Douglas Aird, now in the body of the Great Judge, opened his eyes,

and looked around him alertly. Carefully, he disconnected the wires, packed the instruments—and then called a bailiff. As he had expected, no one questioned the actions of the Great Judge. It was the work of an hour to drive to the apartment of Douglas Aird—and at the same time return the personality of the Science Investigator into its proper body. As a precaution, he had the Science Investigator taken to a hospital.

“Keep him there for three days under observation,” he commanded.

Back at the Great Judge’s Court, he spent the next few days cautiously fitting himself into the pleasant routine of a life of absolute power. He had a thousand plans for altering a police state into a free state, but as a scientist he was sharply aware of the need for orderly transition.

It was at the end of a week that he inquired casu-

ally about a traitor named Douglas Aird. The story was interesting. The man had, it seemed, attempted to escape. He had flown some five hundred miles in an unregistered hopjet before being grounded by a local patrol. Immediately he fled into the mountains. When he failed to report on the morning of the day set for his execution, the printed instrument on his right arm was activated. Shortly before dusk, a tired, distracted, staggering scarecrow of a man, screaming that he was the Great Judge, appeared in a mountain patrol station. The execution was then carried out with no further delay. The report concluded:

“Seldom in the experience of the attending patrol officers has a condemned man approached the converter with so much reluctance.”

The Great Judge, sitting at his desk in the luxurious court, could well believe it.

**When space is finally conquered it will be men
not machines who reach for the stars. And men
are vulnerable**

You do take it with you

by STELLA ANN WOOD

THE JOHANNESBURG branch of the exclusive Astra Club was perhaps not quite so exclusive as its parent clubs in New York and London, but it was select enough remembering the youth of the city—a mere hundred and thirty years removed from its tin-shack origins in the 1880's. And the name, Johannesburg Astra Club, could be misleading, too, for the club was situated on the Welgedacht Flats a good sixty miles from the City Hall, owing to the shattering earth tremors from the Moon rockets blasting

out daily on the Inter-Lunary Commercial Lines Schedules, and which rocked the houses and the nerves of the Johannesburgians even worse than the shocks and subsidences that came from the worked-out gold mines.

Still, the club was popular enough with crews, ground personnel, old-timers and friends, being only a five-mile copter hop from the blast pits and offering along its southern aspect a magnificent view of atomic fireworks as the great sky-liners took off into space. If you could ignore the rockets, it was

discreet, quiet, well-serviced, softly-sprung, and filled with shining alloyed furniture. It managed to combine some of the cigar-laden ease of its London counterpart with the restrained and dignified efficiency of its New York parent. Membership for the non-flying community was limited, but all astronauts, past and present, were automatic members. As a trio we were representative of the type of membership when, one afternoon recently, we met there in a small smoke room for an after-lunch siesta.

It wasn't a pre-arranged meeting. George Davis and I had met by chance to take a late lunch and decided to share a table. And Graves was the only other diner, sitting away to our left, looking, as always, rather remote and grizzled, his "space-blue" eyes examining with kindly and absent interest the choice smoked salmon on his plate. I nudged George when I saw him. "Distinguished company," I whispered.

George stole a sidelong glance at the old astronaut.

"The old buffer wears well," he remarked enviously, squinting down at his own waistline, which was not quite so trim as it had been ten years earlier. George is chief jet designer for the I.L.C.L. He couldn't help designing jets, as he explained once to me, but he was a man with no desire to leave the Earth. His only space journey had been one trip to No. 3 satellite, a stomach-shattering experience he had never repeated. You could call me the wealthy banker type, I suppose. I am an associate member solely because my only son had died on the first and only ill-fated Venus Observation trip, choking his young life out with the survivors near the buckled air tanks of the crashed rocket. I never see the words "carbon-dioxide" without an inward shudder, remembering Paul and his bright dreams of colonising Venus. George's boy is luckier, co-pilot on the Moon-Mars run, and piling up a fantastic number of credits for his retirement. I admired all astronauts, but, like George, I didn't envy them. Apart from a couple of

trips to the Moon in my distant youth, which I found dull and nauseating, I preferred to see the new Lunar cities and the Martian Atmospheric Development on the local TV reels. You either like space, or you don't. Graves had liked it alright, and I wondered how he cared for his enforced retirement since his heart refused to take the acceleration.

For one thing, he was a pioneer—one of the first five hundred off the Earth—and that put him ten medals and five thousand a year ahead of the rest of the astronomical world, and, being his banker, I knew he held a tidy wad of Martian holdings that had trebled their value since the Free Atmosphere Project had been successfully launched. All of which was nice gravy, but I suppose it wouldn't sweeten the earthing pill to a man who had been space-crazy ever since the first V2 rocket had landed in England back in the twentieth. Omitting confidential financial information, I said as much to George as we tucked into some excellent roast lamb.

"I guess all the pioneers had more crazy star-courage than sense," was George's opinion. "Me for terra firma every time. I don't even like being 500 feet up in a copter. But they had guts alright. Those rickety bits of machinery of the 1960's needed men like Graves, thin, and tough as biltong. They made up their minds and stuck to their decisions, never mind who got hurt. I remember my mother's face when the news came through about my old man, and I was hardly in knee britches."

"Your father?" I said in surprise.

"Yes. He died in space. Didn't you know?"

I shook my head. "I never knew he was a spaceman. Come to think of it, I've never heard you mention him before."

"Very likely not. It bit deep, and it was a long time ago. But he was, a pioneer who got the ten medals but not the five thousand a year. Not many of them did live to collect the cash. There's Graves and a few dozen others, but most of them are

probably floating around in space like a lot of petrified satellites, not sitting on lean rumps sucking down hors d'œuvre." George sounded unusually bitter.

There was a short pause. George looked sorry for his outburst, but apart from surprise I didn't hold it against him. You've got to like space a lot better than we did to be able to offer up your nearest and dearest on its starry altar. With a son still blasting regularly he might hear the same news one day as I had received. Maybe you wouldn't understand, but it was almost a relief when I knew Paul was safely dead. I felt sorry for George, but you don't use pity in space, nor sympathy for those who wait Earthside. I got on with my lunch while George's brow cleared.

"That wasn't very fair," he said quietly after a bit. "Particularly with old Graves as the target. He's a nice old duck, more like a typical absent-minded professor these days than science-fiction's intrepid spaceman."

"Perhaps he's got the tradi-

tional mien from the University," I chuckled. "I hear he's doing a lot of lecturing there to the fourth-year rocketry cadets on space psychology and nerve-jimjams, etc."

"He ought to know plenty about that. All that black endless space would be enough to drive me barmy, without waiting for the engines to fall out or the wheels to come off."

"You don't make a very good advertisement for your own product," I remarked wryly.

"Bah! Rockets still go wrong. We've both good reason to know that, Ted. We've long since given up powdered aluminium, and we've designed safety do-dahs all over the ship, but you can take it from me whereas any fool can split an atom today, it takes clever men to control it split in a two-by-four pile a million miles from nowhere. I just design jets. I leave it to others to take off in those radioactive coffins."

A waiter coughed and hovered. We both looked up.

"Mr. Graves' compliments, sir. Would you gentlemen care to join him for coffee?"

We agreed readily. "Tell him thanks, we'll be right over," said George. He caught the astronaut's eye and waved a greeting, and shovelled away the last of his helping of thick cream sponge. He followed my glance to his paunch with a sardonic eye and chuckled. "Guess you and I wouldn't do for space, Ted. I couldn't stand living on sucked tea and concentrate for months at a time. It must be like that poet chap's bit about the 'ante-room of death,' with one foot in the grave and the other on the spatial equivalent of a banana skin. Still, come on, let's go and swap space news with Graves. I bet the old geyser's forgotten more than a couple of earth-bound troglodytes like us will ever know."

So that's how we found ourselves in the small Venus room, with its softly lit ceiling that duplicated space as seen from the second planet, and its magnificent sweep of plexiglass windows that gave a better-than-average view of the distant pits. We had the room to ourselves. George seems to be a law unto him-

self, and works and lunches when he feels like it. I had coptered up to the club on a business discussion and was in no hurry to get back to Johannesburg, that city of tireless frustration. And Graves, of course, could do as he liked.

The old astronaut looked a lot older than when I had seen him last. But he still had his space figure—a piece of skin stretched over a sinew—and also the clear, rather disconcerting eye reminiscent of the ancient and obsolete mariners of the twentieth.

He greeted us warmly. "You look well, Merton," he said to me, courteously. And to George: "How's your boy? Still on the Mars run?"

"Oh, Joe's doing alright, I suppose," said George diffidently. His pride and his fear were almost hidden, but Graves nodded as though he understood. "Today's ships, Davis, and Youth! They'll see more of the system than we ever did, for all the adventurous ballyhoo of the 60's and 70's."

"If you like that sort of thing," said George, with a faint grin.

We dug ourselves in with a special brew of fragrant coffee. A terrific blast shook the floor.

"What's that!" I exclaimed, looking ruefully at my sloped saucer.

"Supply freighter to Sat.4," said George. "It's right overhead at three o'clock. Golly, just look at her ugly nose splitting the ozone!" He and Graves leaned forward to watch the rocket, which was certainly no beauty, but was showing a nice turn of speed. It gathered momentum in a rush, thumbing its nose to gravity, and sent back a cloud of derisive sparks. Graves eyed the vanishing speck wistfully. He looked back and caught me watching him.

"Earthing comes hard," he observed. "It was a rocket not half as sturdy as that which took six of us on the first flight to set foot on Mars. There weren't any fancy launching platforms in those days. We took off straight up from Lunar hoped the mon-

atomic wouldn't bust the tubes, and got our beads ready to swap with the natives."

He smiled his vague, sweet smile. "Only there weren't any natives. I suppose we'd been conditioned by a lot of the evolutionary dogma that was current at the time about parallel evolution and separate development, and thinly disguised propaganda for spontaneous creation. I don't know what we expected to see—something with beetle's legs and barrel chests and built-in telepathic whatsits, I suppose, a la science fiction. But all we found was desert, sand, rank musty air and precious little water. No natives, no fabulous ruined cities, no dying race—nothing but a vast, dead, wind-blown, deoxygenated Sahara."

"Were you terribly disappointed?" I asked.

"I thought it was the most beautiful place in the Universe," said Graves simply.

George sniffed. "You and every other space-crazy young fool before and since," he remarked, but with a smile that nullified offence. "And now look at it! Free atmos-

phere, agriculture galore, five major states, population two hundred thousand and yesterday achieved civilization's highest hall-mark—their first murder."

"What!" exclaimed Graves and I together, startled.

"It's true," said George smugly, gratified with the result of his news. "I picked a teleprint off the tape robot just before I came to lunch. Here we are!" He placed a rough sheet before us, whose headlines proclaimed, baldly:

SON OF PIONEER MARTIAN
FOUND MURDERED IN
ERSTECITY.

TERRAN IMMIGRANT ARRESTED!
Then followed a short account: "Tom Brink, twenty-five-year-old son of the late Pioneer Brink and a first generation Martian, was found dead early today (Mars time) with severe head injuries. William Weitzen, aged twenty-eight, who came to Mars a year ago, was arrested by Captain Young of the Erstecity Constabulary. On being remanded, Weitzen is alleged to have said: 'I did it. It was a grudge fight. It was

over a girl.' Feeling is running in all five states, where Weitzen is alleged to have been called 'The Cain of Mars' by a member of the theocratic Central State's Council, and has also revived demands for more rigid screening of Terran immigrants by the Press and Councils of the other four States."

We dropped the paper back on the table. "Well, that'll take some of the starch out of the cocky Martians," I remarked. "They've always prided themselves on their man-made paradise."

"Paradise be blowed!" said George with asperity. "It stuck out like a sore thumb that that sort of thing would come sooner or later. Wherever man goes he takes his black heart with him. In fact, it was only his colossal conceit that allowed him to think he could make of Mars what he hasn't yet made of Earth. For out of the heart proceed evil thoughts, adulteries, fornications, murders, thefts, covetousness, wickedness, deceit, lasciviousness, an evil eye, blasphemy, pride,

foolishness. These come from *within* and defile the man . . ."

I looked at George with a new respect. Somehow I'd never associated him with a detailed knowledge of the Gospel according to St. Mark. Graves flung him an amused glance, and said: "That's so true it's trite. When you've made as many space runs as I have you'll know that man is by no means a potential angel—he always takes his private devils with him. But it's a pity about Mars. They were doing pretty well until this young Weitzen blotted their copy book for them. It's the kind of unfortunate precedent they won't thank him for establishing for them."

"Same motive, too," I said, following George's Biblical lead. "Why didn't he find his own girl?"

"Perhaps he did; we don't know what happened yet. Maybe Brink stole his girl, not the other way round," reminded Graves. "Either way, I'm afraid Weitzen's had it for this sordid and quite uninteresting crime. Martian public opinion will be against

him, even if he escapes the atomiser."

"They're jolly lucky to have got so far without the capital crime," said George. "It's always been a miracle to me how you astronauts have avoided cutting each other's throats by the hundred in space. A couple of million miles out always seems to me the finest locale for murder anyone could wish. A nice sharp knife," he went on with relish, "one good stab, then bung him out through the airlock, and no questions asked."

Graves laughed. "It's never been as easy as that," he protested. "Though, in the first year or two, when the first rockets were doing the Moon run with a two-man crew, I suppose it could have happened. Maybe it did, but if so the murderer didn't live to hide the tale, for more rockets were lost than returned in those days. But later, when the rockets were enlarged, and crews went up to three, six, nine men——" he shook his head—"apart from mass murder by sabotaging the ship, never a

popular feature with most murderers, since they prefer to remain alive, I'm sure it wouldn't be very easy to put anything over on several lynx-eyed spacemen in confined quarters with nothing much else to do but watch each other."

"No tales of violence? All sweetness and starlight?" asked George quizzically.

Graves poured himself some coffee, sugared and creamed it, and stirred it thoughtfully. He gave George a puzzled look from his kind, watery eye. "Well, there was some doubt over the Z.M.6 affair," he admitted. "But I always thought that was very much on the hushed-up, secret file, forgotten if ever known . . ."

"Never heard of it," interrupted George honestly. "I was only pulling your leg. I guessed that in over fifty years you must have been in, or heard of, some odd affairs, bearing in mind the unreliability of the human heart we were discussing a moment back."

"You may have struck the jackpot at that." Graves' face

clouded. "It was—odd—and certainly more interesting than Weitzen's effort."

"You mean there actually was a murder in space?" asked George hopefully.

"Well, it wasn't proved. It was neat, though. Very neat . . ."

George rubbed his hands together. "I knew it! I knew it!" he exclaimed. "Come, tell us the gory details. I always thought fifty years of extra-terrestrial travel without a murder a bit too much to swallow."

"Here, hold on, George," I remonstrated. "You can't ask Graves to break any confidences."

"Oh, rubbish! I expect it's donkey's years ago. And he can suppress all vital data and call 'em Tom, Dick and Harry."

Graves blinked mildly. "A fine pseudonym. There were only three men involved."

"See!" said George to me triumphantly.

"And as for vital information," continued Graves slowly, "I don't suppose much exists now. The story concerns

a rocket of the old Z.M.6 line, one of the pirate rocket companies that sprang up like mushrooms forty or so years back, before International Control took over. Less than six months after the incident, the whole lot went up in one of the most glorious atom accidents of the late twentieth. Plant, rockets, staff, offices, records, even the spacemen's pets, all vanished in an instant and left nothing but a glass-lined crater more than a mile wide."

The smile came off George's face. "Surely you're not implying . . ."

"Oh, good gracious, it wasn't proved," said Graves again ambiguously. "In fact, I should say you are probably the first person that ever associated the two incidents."

There was a sober pause. "Sounds like a hot tale," said George, at last.

Graves shrugged. "It was, as you say, a very long time ago . . . You might as well hear it, I suppose." He turned to me. "That is, unless Merton would rather not."

"But of course," I assented.

Still he hesitated. "I don't want to upset you . . ."

"You mean," I said steadily, "because Paul died in space? Is it something to do with Venus? I thought Paul's expedition was the only one to date?"

"Oh, no, nothing to do with Venus," he corrected. "I thought I had better ask . . ."

"Seven years is a long time, too," I said, with a touch of unwarrantable selfishness. "And a good tale is a good tale, so long as it happens to somebody else's son."

His blue eyes laved me for an instant, but he let it go. He said: "It wasn't much of a rocket, even for those days. It was an early model two-stage straight up from Luna on a Mars observation trip. That didn't mean it would get to Mars to observe anything. Most of them didn't. But every tinpot rocket company was out for the honour of sending the first fully-equipped manned rocket to land there, and, as I told you, I was one of the lucky ones

some years later who did just that. Except that it wasn't for Z.M.6—there wasn't any Z.M.6 to care by that time.

"The crew—I suppose we had better call them Tom, Dick and Harry—consisted of Tom, the pilot; Dick, the engineer; and Harry, the navigator. These titles were pretty elastic, because in the early crates every man was supposed to be able to do most of the jobs in case of emergency, of which there was often plenty.

"It was just about a quarter of the size of the smallest Mars cruiser of today, and so nicely worked-out for poundage you couldn't have got a cat aboard as excess baggage. But it did have separate sleeping quarters, a small three-berth cabin immediately below the control room and connected by a six-foot narrow stairway. It even had a wash-basin fixed to the wall with a gadget that doled out one and a half pints of washing water daily per crewman—next to air, water was the most precious thing aboard. But, speaking from what I

knew of some of the fine work and materials that many of the rocket companies were putting into their machines, and honestly trying to make safe and comfortable rockets, I'd say that this particular job was a gimcrack affair, and likely enough gave rise to the scheme in the first place.

"Of course, there wasn't any artificial gravity or spinning periphery, you understand. These luxuries came along much later. This was the kind that left you weightless as soon as the motors cut out, with all the beastly acceleration sickness to combat as well as the ghastly fallingsymptoms of the 'floats'. It had the usual forced-draught system, and artificial air of much the same chemical composition as we use today—up to fifty per cent. oxygen—enriched at take-off to save weight in oxygen storage, and helium to replace the normal nitrogenous base to give vital seconds for combating pressure bursts from meteors. Anyway, as a rocket, it worked, and its crew were the usual space-crazed type of the early post-pioneer period. If

it was a rocket, and if it went up to free fall, they wanted to travel in it. It was a much worse bug than had bitten the Earth colonisers of the sixteenth and seventeenth centuries."

"No accounting for tastes," agreed George politely.

Graves smiled vaguely. "So that was the set-up. Three men took off from the Moon for the great Martian adventure, and three men came back—only one was in cold storage."

"They didn't bother about psychology that far back," Graves said. "All the rocket companies wanted to know was whether a spaceman could take the acceleration and whether he knew what to do if half a dozen things went wrong at once. So that meant some odd types travelling together, and, according to Tom, the pilot, who gave evidence at the subsequent enquiry, there was bad feeling from the start between the engineer and the navigator. And he never was able to pin it down. Being in command, he talked to the two about

it when they were only three weeks out from Luna, and threatened to stick their heads in the reactor if they didn't snap out of it. But the pig-headedness of the male, which is something quite easily absorbed in the hurrying activities of Earth, is distilled into solid concrete in the astronomical vastnesses of space. They were civil enough to him, and they worked all right, but the atmosphere, and the veiled threats, the ugly looks from Harry to Dick, and Dick's ill-concealed watchfulness of Harry, continued for the best part of the month's long trip until death knocked one of the protagonists out of the battle. A pretty unpleasant battle it must have been for the pilot to watch, too. With his own life depending on the amity and skill of two men who were always at unspoken loggerheads, he must have been nearly as nervous and irritable as the unfortunate Harry. According to Tom, you could have cut the atmosphere with a knife, and only a spaceman knows the strained quality of a close-quarters hate being built

up slowly one weary week after another.

"Of course, he tried to do something practical about it. He threatened, cajoled, tried to reason with, tried to find the reason for, begged for a truce for the duration of the trip, and finally ordered them to behave like men instead of criminal lunatic kids. That practically started a riot. But when all had quietened down the only result was an increased civility to himself and a growing monster of almost tangible hatred between the other two.

"Well, they didn't get to Mars. Not near enough to make any observations that hadn't been made before by earlier expeditions. They were a good twelve million miles off target when something went wrong with the firing mechanism and two of the jets started up and kept going for fourteen desperate hours. The sudden, unexpected acceleration caught them off balance and knocked them clean out, and by the time they got around, staggering against the crushing weight, to fiddle with the

gadgets, they looked like ending up at Sirius. They found the fault at last, cut out, and discovered they were still in the Solar System, but only just. Maybe that is an exaggeration, but even a few hundred thousand miles off course was usually finis in space at that time. After twenty-four hours of sweating calculation, Tom estimated they had enough fuel to climb back on a forced trajectory to Luna, and leave the barest minimum for braking on arrival—if nothing else went wrong.

"Something did, pretty soon. Dick was one of those types who suffer from the after-effects of acceleration sickness rather worse than most, and he had been issued with special pills on the Company M.O.'s orders. You can imagine that, after a nightmare experience like that unofficial jet-hike, he needed those pills badly to pull himself together. He went on needing them, because they just weren't to be found.

"Now, you don't really *lose* anything aboard a space craft. You don't use pills to

feed the reactor, and the only other place is out through the airlock with the rubbish. Tom and Dick hadn't emptied any rubbish. Harry had. Nothing said, but plenty thought. Tom swore more violently than he had ever done on Earth, doled out some stuff from the medicine kit that wasn't much good, and ordered a few hours rest before they started back.

"They all took the rest. Even the feud seemed to have died down temporarily in the nervous excitement that followed the last two days. They dozed fitfully, or sucked nourishment, taking turns of duty at the board. But the time was barely half gone when the meteor bell went off with a cacophony that filled the tiny ship with the space-man's peculiar dread—penetration by meteors.

"They took about one second to start up and grab their individual supply of 'plasters.' They were lucky. They had nearly half an hour to watch the approaching cloud of particles on the screen, and even then, by some miracle, they weren't

really in it; all they caught was the tail end of the tail, if you follow me, something like passing through the tail end, the faintest tip, of a comet."

"Perhaps I shouldn't have said they were lucky, because that cloud of meteors was the cause of the next piece of unpleasantness; in fact, of an incident that can only be described as murderous. While they waited, tensed and sweating, they were penetrated four times within a minute. They had the preliminary plasters on in something like twelve seconds. It's amazing how fast you can move, and how accurately, when a few seconds delay might mean a singularly unlovely corpse in a disintegrating ship. But when at last they had the blazing sun, the bright stars, and the endless black vacuum of space all to themselves once more, there was a tidy amount of repair work to do, and a good deal of it was outside, with nothing but ropes, spacesuits, magnetic boots and goodwill, especially the latter, between them and eternity.

"Tom went out of the airlock first and had a look round. He came back with a plan of work, helped them fix tackle, get into their suits and adjust equipment. He manipulated the airlock while they vanished one at a time through the outer chamber and fumbled their way round the shell of the ship.

"For a long time there was nothing but work, terse to and fro order, query, or assent through the radios, and the ghostly, maddening silence of unshielded space. Repair work takes a long time in space, as you will both appreciate. So Tom didn't take much notice when a goodish interval went by with no word through the radio from either of them.

"Suddenly, there was a most frightful cry, a smothered, choking sound of rage and fear, and then followed immediately by: 'He's pushed me! I'm falling! Help! Throw a rope, curse your filthy hide! He—E—LP!'

"If this was a tale of Earth, you could say that Tom was up outside like a streak of lightning to the rescue. But it isn't

and he wasn't. He had to refix his suit, adjust the oxygen, grab some rolls of rope, and manipulate the airlock, which took so many precious minutes he was almost too late. When he finally floated up clumsily to the outside, Dick was standing curiously immobile, ignoring Tom's shouted questions, and Harry was a good hundred yards off and under the ship, dropping in terrible miming travesty into some peculiar spatial path of his own. His radio must have jammed, because nothing came over but a blurred grinding sound that did nothing except use up his small supply of air.

"Tom yelled through his speaker: 'What happened?' Dick turned slowly, startled by his arrival. 'He was rounding her nose and off contact. His rope must have got loose,' he said sullenly.

" 'He said you pushed him!' said Tom furiously. 'Give me your rope.' Dick said nothing, but handed it across. Tom clambered for'ard, slotted the ropes together and jammed the contact end firmly into a

socket on the ship's hull, fastening the other end to his belt. For a long minute he estimated the angle of the wretched Harry's fall, then with a nasty tightening of his stomach he said to the silent Dick: 'I'll drop below him and try to pick him up. I hope to Heaven there's enough rope! Give me one good shove—and don't let *this* rope come loose.' ”

Graves paused to light a long, slender cigar. “Now that took guts. Maybe you two think it takes a lot of courage anyway to leave Earth at seven miles a second in the first place, but I can tell you it took a very special form of courage to allow Tom to leap off that ship with nothing but a long length of rope between him and a potential murderer. ‘Did he fall or was he pushed’ didn’t come into it, Tom knew, where Harry was concerned. A tossed rope would have brought him back in a minute if Dick had cared to throw it immediately the ‘accident’ happened.

“Dick, apparently valuing

his own skin and the pilot's, as an indirect means of returning them both to Earth, gave his full attention from then on to the rescue. The ropes were long enough and Tom did manage to grab Harry in passing, and Dick hauled them both back to the safety of their tiny air-filled world a few million miles from the rainbow's end.

“Harry was as sick as a dog as soon as they got him back through the airlock, so they shoved him on his bunk while Tom took the sullen Dick back with him outside to finish the repairs. When all was as safe as they could make it—and it was several hours before Tom was satisfied—they found Harry had recovered, cleaned himself up and prepared some food.

“Tom didn't know what to do about the incident. It was one thing to be certain in his own mind that murder had been intended, but there was only Harry's word for it, and accidents, genuine ones, are only too frequent in space. And the two men seemed definite about an inquest on the matter when he tackled it.

They shut up like clams. Harry was white, rigid, polite and efficient—Dick was sulky, quiet, tired and ill, due to nervous prostration plus the need for his missing pills. So Tom let it lie, hoping they'd learned their lesson. They all wanted another few hours rest, and hoped they'd get it this time before the long, fretful acceleration back to the Lunar path.

"Nothing else happened, of either human or spatial origin. But as time approached for the attempted return, it was found that Dick was really ill and likely to be a lot worse if they ever reached the top of their planned jump. He lay on his bunk, watching Harry fitfully with red-rimmed eyes as still as a snake's in a pallid, sweating face. Tom took one look at him and wrote him off philosophically as an active crew member for the next few days. He fixed the straps of the engineer's bunk with his own hands, warned him of acceleration zero, and told Harry to follow him overhead to controls. He says he prayed as they fixed their own straps,

and very likely he did; that gimcrack rocket on that kind of climb needed something a little more than natural law to get it there.

"The red light flashed in both cabins as the automatic took over. Ten seconds later the jets fired with a shuddering crash and the ship creaked in torment. Tom and Harry blacked out several times before the pre-set dropped them back to three and a quarter G's and they could almost breathe without gasping. Even so, they lay pressed on their backs for the next five hours, watching in dumb relief as the flight screen marked up steadily the foulest synergy they'd ever been on.

"They made it, obviously, otherwise I shouldn't be telling you this tale. But Tom said it was nothing short of a miracle. When at last the deafening, nerve-shattering whine had ceased and they were coasting quiet and weightless back on the long Lunar drop, they were both very sick men indeed. It was a long while before they got up to make some manual

adjustments, and they were not at all comforted to find that most of the directional rockets had vanished or folded up and that half the Lunar landing apparatus was in a very unsavoury state. They wafted below as quickly as their sick stomachs and tortured lungs would let them, and stayed there a long while gloomily checking and assessing the damage. Tom said it might have been worse—just slightly, and gave a doubtful look towards the six-foot thick lead protector that gave their life-shell immunity. He said, wearily, as they passed the cabin door on their way up: 'See how Dick's making out. Tell him I'll fix him a potion,' and floated up the ladder. He felt too ill to care much about anything and had hardly collected the ingredients for a brace for them all when Harry's head appeared above the deck. His face was agitated, and he came up so unthinkingly fast he overshot and hit the ceiling handrail. He floated down, gibbering like an airborne ape.

"'He's dead,' he said stupidly.

"'So am I,' said Tom caustically. 'I hope I never—*what did you say?*'

"'A corpse, I tell you, and something funny . . .' He seized the plastic brandy bottle and stuck the nipple in his mouth.

"Tom stared, then made a wafting lunge for the ladder. Harry, still sucking brandy, followed him slowly.

"Dick was dead. They stared down at the body, half fastened down, features contorted, fingers bruised and purpling where they had torn at the confining straps in dying paroxysms. 'He couldn't take it, captain,' said Harry tonelessly. 'Too many G's——'

"'Fool!' spat Tom. 'Too many G's be damned! He had a heart like an ox. His stomach wouldn't have finished him, even without his pills. That's what killed him!' He pointed to the peculiar, moist miasma around the dead man's head. He stared round the tiny cabin and heaved towards the forced-draught vent. For a very long

minute he stood and looked at it. He turned slowly and said to the watching Harry: "It's off".

Graves stopped dramatically. George shot me a sudden startled look that didn't register for the moment. I'm a banker, not a spaceman, so I said, uncertainly: "You mean you think this Harry had turned off the temperature or something, so he died of heat?"

Gravesshook his head. "No, nothing like that. There was plenty of good, cool air about, but it wasn't much use to a sick man unable to stand, and fastened well down into the bargain."

George saw my puzzled frown. He said, quietly: "You need more than air in a spaceship, Ted. Used air is cleaned chemically and stored for re-use. That means a purifying apparatus. You need something else equally vital. In a free atmosphere warm air rises, while cold air sinks. In the old-type space craft where everything was weightless, as soon as acceleration ceased, air also had equal no-weight. It would stay put

without an artificial draught system to force its circulation. So, a sick man, strapped down, gasping from acceleration, weak, and suffering from acute nausea, within a short time of the resumption of free fall would——"

Even after all these years the truth struck me with a sudden unbearable contraction of the heart I thought I'd long controlled. Paul's voice was an echo in my brain, beamed across thirty million miles . . . "Dad, tell mum thanks for everything . . . Not long to go now . . . Atkinson walked off . . . it's filthy, beastly jungle. He's taken his helmet off—yes, he's gone. Maybe I will, too . . . Better than choking in this plastic trap . . . Sorry there's no time for scientific exam . . . Tell Research they're miles out in their carbon-dioxide content . . . About four minutes to go—at the most—do you mind if I don't wait . . . I can't . . ." A horrible suffocating gasp . . . silence.

The memory mist cleared. I found them both staring at me . . .

"—so he would choke in his own exhaled carbon-dioxide," I finished huskily.

Graves nodded sombrely. "Not at once, naturally. But with the forced-draught vent closed, it would build up slowly in front of his face. By the time he found out, ill as he was, it would be too late to escape. He'd tried to, of course. There was good evidence of that. But they'd been busy below, and had lain a good while themselves when they reached free fall; there'd been plenty of time . . . for a man to drown in his own unwanted breath . . ."

"What a fiendish thing to do!" I exclaimed, still in the grip of horror.

Graves raised his eyebrows. "Oh, but it wasn't proved. I told you."

"What about opportunity?" asked George curiously. "If they were both strapped down, and later went below together . . ."

"That, of course, was one of the main points at the enquiry," admitted Graves. "But Harry could have done it, just before he left the cabin to follow Tom overhead

to the controls, while Tom was fastening the engineer down. If he was quick and quiet about it, very likely neither would have noticed the action. Five hours' acceleration, plus an hour or so of no-weight and the draught shut off . . ." Graves shrugged. "They tried the automatic artificial respirator, and heart massage and the usual drill, but for all that the engineer finished his last trip stuck in the cold room with the frozen oxygen."

"Was any mechanical fault found in the draught system in the sleeping cabin?" I asked.

"Not a thing. But if you'd been in on that enquiry, would you have cared to accuse one of those two men of deliberate manipulation of the switch, after that terrible climb, with half the other apparatus jammed or out of order as a result of it?"

"I see what you mean," I agreed. "If this Harry was looking for an excuse, he'd got a splendid cover-up there."

"Fool-proof, eh?" mused George thoughtfully.

"I told you it was neat," reminded Graves, looking

quite pleased with the interest he had aroused.

"But why?" I said explosively. "He must have been a devil in human form——"

"Two devils in human form," amended George. "The engineer had shoved him off the ship, way beyond its tiny gravity pull. As Graves said, that looked like murder, too. What I'd like to know is more about the reason for their feud. If I'd been in on that enquiry, I'd have pulled Harry through a wire sieve trying to find out."

"Oh, but they did! Tom admitted, under questioning, he didn't like either of the men at all, and Harry freely admitted he and the engineer loathed each other, but that it was simply a question of complete incompatibility in space. As for the unlucky incident outside the ship, he insisted it was an accident. And as they couldn't shift him on his story, and couldn't prove a thing, that was the end of that. The inquest said accidental death, the report was filed and faded out six months later when the whole

place mushroomed into space."

"A very unsatisfactory murder," opined George. He fixed Graves with a shrewd eye. "That is, if you think it *was* murder?"

"I've given you all the direct evidence." Graves' blue orb rested on him with a faint reserve. "I've no doubt there were a few private theories about it, but you don't hang, or ground, a man on a theory."

"Yes, but why?" I said again exasperatedly. "Surely, even in space, men don't kill each other just because they get on each others' nerves?"

"N-no." Graves hesitated. "But they can get pretty spiteful unless they're hand-picked, cooped up in those tin cages. It couldn't happen nowadays, of course. They *are* hand-picked. And they don't travel less than ten to a crew."

"Alright, if they don't kill for dislike, what else do they kill for?" George was warming up to it. "Jealousy. Money. Blackmail. Lunacy."

He turned to Graves. "Any woman-trouble dug up about the two men?"

"No. Neither was married, in or out of church, just then. Nothing serious, anyway."

"Money? Say pirates, hidden treasure? Stolen jewels from the life-forms, etc.?"

Graves grinned. "I've never met a 'life-form' yet. No, I don't think so. They both relied on their spaceman's credits, not princely, at that time."

George nodded. "So what about blackmail? We can leave out lunacy."

"Can you?" asked Graves suddenly. He fidgeted as though he would have waved the question away as we both stared hard at him. "Well, alright. Who was doing the blackmailing?"

"It was Dick who died," I pointed out.

"Let's have your theory," said George to Graves, sharp-eyed.

"My theory, as you call it," said Graves slowly, "is based on something you two have overlooked, not being space-minded. What was the one

essential thing these three men had in common, apart from the rocket?"

"Their desire to be in it," growled George. "The fools!"

"Exactly." Graves nodded, as pleased as though George was one of his brightest cadets. "All three were space-crazy. Remember that. Then let us assume that Dick knew something about Harry that, if it were known, would have grounded him Earthside for good. What was the only thing which at that time, if true, could have done that?"

There was a pause. I said, incredulously: "Insanity? Are you trying to say you think one of them was mad? Not just space-potty, but maniacal? Homicidal? This Harry? Surely it would have been known?"

"On the contrary, that sort of thing is usually kept well hidden," said Graves drily. "And he may not have been himself involved. It might have been only a strong streak in the family. A change of name—a false background"

"I see." George considered it. "Was this trip the first time the two men had met?"

"Yes. At least, for the record. I think we may take it that this Dick was an unpleasant, but not uncourageous, character. And when he saw Harry, and recognised him for what he was, someone with the kind of family one *never* boasts about, instead of reporting him before blast-off, he thought to make a steady income. You know: 'Half your salary from now on or I'll tell the authorities that your mother died raving and get you Earthed for good.' The rocket companies were short of tough, skilled men, short enough to have turned a blind eye to quite a few things, but not one of them would have risked a screwball with a known history of violent instability."

"But you didn't suck all this out of your thumb!" protested George. "Anything to support it?"

"One small thing. Among the many jobs the engineer had had before space bit him, was one for a brief period as male-attendant in a State asylum."

"Oh. It fits," conceded George. "Except—why did

Dick shove Harry into space? He'd have lost his income."

"Wind up, I should think," said Graves briefly. "It wouldn't be funny travelling with a mad hate, and he certainly couldn't confide in Tom that late. He'd have done time himself, with possible grounding, for criminal negligence, extortion, and general charges. He was space-crazy, too, you must remember. I expect one hefty push when the opportunity offered seemed to him a good way out of a business he wished he'd never started. And he knew what happened to his pills, you may be sure of that. That would rankle, too."

"Did anybody follow-up this asylum job of the engineer's with a check on Harry?" I asked.

"No. Curiously enough, I don't think anybody else associated the two things. I've often wondered what would have happened if——"

He broke off as a loud series of bangs, wallops, and tremors drowned out speech for a moment. Away in the

distance a beautiful silver moonship was taxi-ing across to the pits, with enough noise spouting from her auxiliary jets to distract the most animated conversationalists. We watched in silence as she disappeared, and later reappeared in Pit No. 10, lifting her nose in leisurely disdain to the faintly outlined satellite in the clear African sky. A dozen or so men and three women passengers moved towards her, carrying take-off gear, and disappeared down the boarding ramp.

"What happened to the other two? Tom and Harry?" asked George, still brooding over the murder.

"Eh!" Graves blinked, and brought his mind back. "Oh, the pilot went out in a busted rocket a year or two afterwards. The monatomic used to do that, you know, just when you thought you'd reached escape-v. And the navigator lasted lucky a lot longer. Long enough, I'm sure he'd consider, to have made it worth while."

"H'm . . . If you're right . . . I don't like blackmailers,"

said George at last, very doubtfully.

"But murder . . . To be shut up with such a man would be punishment enough. And what a death," I remonstrated, remembering Paul. "Perhaps even that whole plant . . . It must have been on even his mad conscience to the end of his days."

"We-ell!" commenced Henry Graves absently. With an unnamable noise of nerve-shattering terror, the main jets of the moon rocket fired. Pit No. 10 was filled with the fires of Hell, as second by second she raised herself, yard by increasing yard, away from the hands that made her. The astronaut's eye, lit by a thousand longing memories, hungered and thirsted after the lengthening column of fire, drank in her incredible speed, fed vicariously on the glory of fire as the hydrogen filler gouged out in breath-taking incandescence. "N-no . . . I wouldn't say that. It never cost him a moment's loss of sleep. In fact . . . I'd practically forgotten it . . ."

Book Reviews

TIGER! TIGER! by Alfred Bester, published by Sidgwick & Jackson, 1 Tavistock Chambers, Bloomsbury Way, London W.C.1, at 12s. 6d., is the second full-length novel by the author of *The Demolished Man*, which won a certificate of merit in the International Fantasy Award.

The latest novel is the story of Gully Foyle, sole survivor of an abandoned spaceship who, by pressure of circumstances, becomes something more than human. His motivating drive is that of vengeance; revenge against those who refused to rescue him, but this main theme is surrounded and elaborated by an astonishing complexity of plot and intrigue.

The author, with his customary lavishness, embroiders the entire story with a succession of shock tactics which

holds the interest through every page. Aside from the main search, we have a civilization based on the powers of teleportation, interplanetary war, business versus government, decadence and cynical compromise. The characters are alive and skillfully drawn. Gully Foyle himself is incredibly larger than life with his frightening ruthlessness, his absolute determination to extract vengeance and his struggles with the powers with which he comes in conflict.

There is nothing tedious about this book, nothing long-drawn-out nor fully exploited. It is almost breathless in its swift passage from situation to situation, world to world, from the heights to the depths of the civilization depicted. There is a sweep and rush to the story, with its

succession of ideas, situations, characters, facets and by-ways of a future world. And, against this fascinating background, the tension and excitement mount until culminating in a truly stupendous climax.

Anyone who has read the earlier work by this author will want this book. Anyone who likes good, fast-moving, well-written science fiction of the highest order cannot afford to miss it.

ESCAPE TO VENUS, by S. Makepeace Lott, published by Messrs. Rich & Cowan, 178-202 Great Portland Street, London W.1, at 10s. 6d., is a thoughtful account of the colonisation of Venus.

Venus offered something to the tired, sick world of Earth. A world, in 2040, in which men seemed to have lost the initiative. Yet some men rose above their environment, and to these men Venus offered escape.

There is no nonsense in this book, and the author has

taken the trouble to present his story with scientific accuracy. His characters are real men and women, moving against a logical background in which space travel is just another ingredient in a sober, excitingly realistic imaginative study of what the future may well be.

THE OTHER SIDE OF THE MOON, by August Derleth, published by Macdonald & Co., 16 Maddox Street, London W.1, at 10s. 6d., is a collection of eleven stories.

It is a mixed bag of good, very good, and indifferent. *The Appearance of Man*, a short sketch, will not please everyone, but old favourites such as *The City of the Singing Flame*, by Clark Ashton Smith. Bradbury's *Pillar of Fire*. Sturgeon's *Memorial* and other fine pieces by Eric Frank Russell, Will F. Jenkins, A. E. Van Vogt, S. Fowler Wright, Donald Wandrei, Murray Leinster and H. P. Lovecraft, make this collection most enjoyable.

Discussions

LITERARY LINE-UP

Have just read No. 67. Ten short stories! That's about the most you have ever had. Anyway, it should please those who have been grumbling about too many articles.

In my opinion *Man in Between* was this issue's top story, with *The Earth Never Sets* a close second. Alan Innes' *The Long Journey* merited third place, and for the fourth place it was a tie between *Lonely Immortal* and *Dr. Blaise*. Coincidentally, it was also a tie between *Grant in Aid* and *Waif Astray* for fifth place. Both stories had points of similarity. *Tailor Made*, I think, deserves sixth place, with *A Woman's Work* taking seventh and *Post Mortem* eighth.

P. Buckle, 9 Landseer View,
Bramley, Leeds 13.

All in agreement?

ARTICLES UNWANTED

May I say how much I agree with the sentiments expressed by W. M. Bealie and Roberta Wild in issue 67 about the superfluity of the articles. A short while ago *Authentic* gave every impression of turning into a technical journal, and quite frankly I only continued to buy it because of the paucity of science fiction magazines now published. The odd one or two articles do not come amiss, but when a magazine starts getting swamped with them, it's too much!

I have no real complaint about

the stories, as they are a good mixture. I liked *Man in Between*, but *Waif Astray* seems unfinished. F. Clare, 48 Wendover Drive, Bedford.

As you can see, the article content has been reduced with a corresponding increase in fiction; a change of policy which I hope will appeal to the majority.

PROGRESS REPORT

I have before me some of the earlier issues of *Authentic* and cannot help noticing a very great difference, not only in format, but in the covers themselves. Referring to No. 55, one sees the usual stereotype cover, with very little imaginative or artistic creation involved, but No. 64 seems to be the beginning of something different and has continued along these lines until we arrive at issues 66 and 67.

As regards No. 68, the cover, although striking enough, fails in that the lines on the gentleman's face are so very artificial to say the least. The only part of the cover which merits comment is the glass—always a difficult subject to paint, and the artist is to be congratulated on his very fine touch. What I admire most on the covers of issues 66 and 67 is the clear line and almost photographic quality of the Planetarium scene and the Self-Portrait—by Mortimer. I do hope that you will continue to produce such attractive covers.

The contents, too, have undergone a radical change—thank heavens—and you now present us with more shorts and, in the latest issue (No. 68) a novel! With the introduction of the novel we have a corresponding reduction of the articles, which makes for a happier balance of literature. Keep it that way!

The few interiors are excellently drawn, but the same artist for interiors as well as covers is a bit too much for my taste. If you refer to your previous issues you will understand what I mean by a "static style"—I realise that every artist develops his own style, but it is a mistake to just cling to one. Could we have an interior—if it has to be a figure—without the jagged crossing lines over features and clothes? The whole subject, as you can see, is lost in an appalling mass of lines.

To summarise; the magazine is certainly alive and possesses a distinct personality. In continuing the readership of your magazine, I trust to be rewarded with attractive covers, articles which are kept below fifty per cent of the contents and a figure drawn without the added embellishments of jagged lines.

Dare I hope for an increase in the number of interior illustrations?

Mrs. D. Ratigan,
21 Highbury New Park,
London N.7.

One thing is certain—you are the type of reader who takes a real interest. Thank you.

ERROR?

Although I thought the article on radiation (issue 68) was very in-

formative, I must raise objection to the statement: *In fact, atoms will only engage in chemical reactions when they are ionised.*

Two reactions at once spring to my mind to contradict this statement:



I have chosen reactions A and B with some care. If it is objected that A is not a normal chemical reaction, my answer is that few, if any, of the commoner chemical reactions are between atoms, but between molecules. If we include reactions between molecules, then my choice is B. The kinetics from this reaction have received very great attention from research workers, and it has been established that the reaction is trimolecular, while all ionic reactions are, of necessity, bimolecular, there being only two forms of ions; positive and negative.

If all that is meant by "ionized" is "perturbation of electron orbitals by the electromagnetic field of neighbouring atoms" there can, of course, be no objection to the statement in question.

I have read every issue of *Authentic*, and, in general, think you have made good progress. I, myself, am very keen on robot and computer stories.

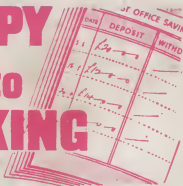
J. N. Sharma, 33 Torcross Road,
Ruislip Manor, Middlesex.

It looks as though you have discovered our old friend the Exception to the Rule, which makes any blanket or generalised statement invalid. It is human weakness, however, to make such statements. Who hasn't heard of the classic "What goes up must come down"? True, on the face of it, until we remember hydrogen.

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H. M. S., Stroud.

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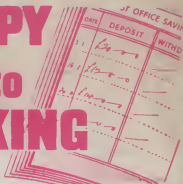


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AUTHENTIC SCIENCE FICTION

No. 71

THE MAGAZINE OF TOMORROW

AUTHENTIC SCIENCE FICTION



No. 71